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EDITOR'S LETTER

FINDING NEW MODELS

The global recession has driven operators to look further afield for growth, prompting them to be more creative in identifying development and partnership opportunities. The recession has also inspired operators to be more outward-looking in their approach and we're seeing an acceleration in the number of projects that involve international collaboration.

From theme parks and museums to science centres and art galleries – operators are attacking opportunities with gusto and it's a process that's gathering momentum.

There have always been global attractions brands, but it's been a select group, involving operators of the scale of Disney and Universal. Now the opportunity to grow's being taken up by national- and regional-scale attractions which couldn't have considered it a few years ago, but which have the profile to make the transition to the world stage.

Some months ago, Tim Smit told *Attractions Management* he was in talks for the development of sites overseas and now it looks likely an Eden Project will open in China. It's conceivable that this compelling attraction could transfer to most cultures and, with minimal adjustment and with the right funding, become a global operation.

"The industry is entering a new phase where operators can play with scale, location and the business model to extend their reach"

If the recession has prompted operators to broaden their horizons in terms of finding business opportunities, it's also inspired the creation of new business models when it comes to the development of the facilities.

We're seeing an increasingly diverse range of new facility types, from temporary and relocatable, to shared, refurbished and repurposed – there's no longer a 'one size fits all approach', it's more a question of getting creative and finding a solution which is appropriate to the situation and the nature of the operation.

And with the real estate costs being so pivotal to the success of any attraction, solutions which keep these to a minimum are far more likely to succeed.

Compare the timescale and costs involved with building a theme park on a greenfield site to those of taking over an existing business with the infrastructure already in place. In Florida, Merlin Entertainments is turning the old Cypress Gardens into a Legoland – a great deal of the infrastructure is in place and the economics of buying the failed business and speeding up the development process, make the project viable in a way that would not have been possible with a new-build.

So the industry is entering a new phase where operators can play with scale, location and the business model to extend their reach. If the essence of a brand can be captured and a compelling experience built around it and scaled for the business opportunity which exists, then the opportunities are enormous.

Liz Terry, editor, attractions@leisuremedia.com

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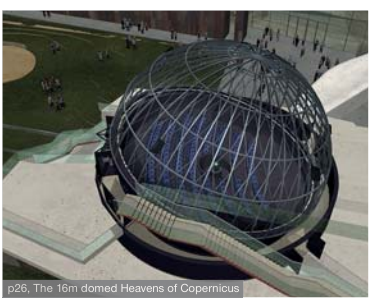
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Smithsonian amends US$245m NMAAHC plans

TOM WALKER

The Smithsonian Institution has revised its plans for the creation of a US$245m €170m, £150m) National Museum of African American History and Culture (NMAAHC). The architectural amendments to the plans have been introduced to secure the approval of the National Capital Planning Commission, after concerns about traffic disruption during the building process aired in September 2010.

The 315,000sq ft (29,000sq m) museum will be dedicated to charting the history of the black American people.

The museum will house more than 150 displays

June opening for £74m Glasgow museum

TOM WALKER

Glasgow Life has announced that the new £74m (€84m, $122m) Riverside Museum, which will be home to the city's transport and technology collections, is to officially open on 21 June. The Zaha Hadid-designed attraction is to be launched by Glasgow City Council leader Gordon Matheson and will house 3,000 exhibits across 150 displays.

It will provide the Museum of Transport's third home since opening in the 1960s and is the first new-build attraction since The Burrell Collection was unveiled in 1983.

Northern Ireland museums' policy unveiled

TOM WALKER

Northern Ireland's first museums' policy – designed to guide the sector's development for the next 10 years – has been launched by culture minister Nelson McCausland.

McCausland expressed hope that Northern Ireland's museums will play an integral role in helping to address social inclusion and cohesion issues. National Museums Northern Ireland and the Northern Ireland Museums Council helped to develop the new policy and will work with the government to deliver its aims.

Architect named for V&A works

TOM WALKER

Amanda Levete Architects (AL_A) has been appointed to lead the Exhibition Road scheme at London's Victoria and Albert (V&A) Museum, following an international contest. The London-based practice held off six other short listed entries for the project, which is to include the creation of new galleries and a public courtyard for installations and events.

The plans include a new entrance being created on Exhibition Road

An entrance to the attraction will also be created on Exhibition Road as part of the scheme, which attracted more than 110 expressions of interest from firms across the world.

A jury chaired by V&A trustee Steve McGuckin chose AL_A, which will now work with the museum on detailed designs.

Paul Ruddock, chair of the V&A board of trustees, said: "This new development will transform the way the V&A is able to present its major exhibitions and will enable us to reveal and restore the museum's magnificent south court."

The Exhibition Road project forms part of the V&A's ongoing FuturePlan. The scheme is expected to cost £35m (€40m, $58m).

Museum of Mathematics nets $2m grant

PETE HAYMAN

The Museum of Mathematics, which is due to open in New York, US, in 2012, has secured a US$2m (£1.2m, €1.4m) grant from internet giant Google.

Located in the centre of Manhattan, the attraction will incorporate exhibits that are designed to "stimulate inquiry, spark curiosity and reveal the wonders of the maths".

The grant will go towards the development of the Museum of Mathematics and the creation of interactive and innovative displays that can be shared with attractions worldwide.

The Museum of Mathematics will launch in New York, US in 2012

It is one of the attractions across the US and UK to be handed a share of US$12m (£7.3m, €8.2m) by Google, with other recipients including the New York Hall of Science.

Michael T Jones, chief technology advocate at Google, said: "By transforming the curious learners of today into the innovators of tomorrow, museums perpetuate both creativity and accomplishment."

Regional UK museum named most child friendly

TOM WALKER

Mansfield Museum has held off competition from five other UK attractions to be confirmed as the winner of the Guardian Family Friendly Award 2011. The Nottinghamshire museum has been labelled as a "surprise" winner of the award, which aims to recognise attractions that are the most welcoming to families.

Other short listed sites were the Corinium Museum in Cirencester; the Potteries Museum and Art Gallery in Stoke-on-Trent; and Kilmartin House Museum in Argyll.

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Rise up to the challenging times

ADRIAN MAHON

The UK is facing increased taxation and higher unemployment following cutbacks in national and local Government expenditure. And, to cap it all, 'stagflation' – high levels of inflation coupled with an economy which showed signs of a slowdown in the last quarter. Food and fuel prices 'have never been higher', to quote a recent article, and I anticipate that before long we'll see industrial unrest in many sectors with union leaders getting together to plan their campaigns for job protection and compensating increases in pay.

Sounds pretty dismal, doesn't it? Where does that leave the attractions sector?

I take up the chair of BALPPA, as we embark on a year in which many people in our industry are saying 'will be our most challenging for some time'. It will be a very challenging year and there is a question mark over just how much spare cash consumers will have available for days out and holidays. But our great UK attractions industry is very resilient, as we have proven time and again. Yes, we do need to be prudent and watch every penny until we see how the year is panning out, but, if we continue to provide great experiences at value for money prices and pay attention to the detail (where customer satisfaction is won – and lost!), the guests will come.

A recent consumer survey indicated that 'the Brits' will give up their holidays only as a last resort and, with a poor exchange rate against the euro in particular and high prices overseas, in recent years many of them have voted with their feet and holidayed in Britain. BALPPA is supporting the Better in Britain Campaign and has had a positive response to encouraging parliamentarians to set an example and holiday in the UK this year. Some UK leisure operators are reporting that bookings for holiday accommodation are up again this year, so we must take such opportunities by the horns and capitalise on them.

Yes, we will need to work harder, but we all need to work smarter too and understand what really excites our customers, then deliver that consistently, through every minute of every day.

Adrian Mahon, chair, BALPPA

New tourism strategy revealed

TOM WALKER

England and Wales' May Day bank holiday could be moved to another time of year as part of the government's new strategy to increase tourism. St David's Day (Wales) in March and St George's Day (England) in April could provide a rescheduled bank holiday, while a 'Trafalgar Day' could take May Day's place in October.

The strategy aims to promote domestic tourism as well as inbound visits

The government said the moving of the bank holiday forward would help Hallowe'en and Bonfire Night become "larger celebrations".

However, plans to move UK clocks in line with Central European Time, which would be one hour ahead of Greenwich Mean Time in winter, have been scrapped. Other proposals set out in the Tourism Strategy include improving the entry visa process for overseas visitors and the introduction of more e-Passport gates to reduce queuing times.

The government has also set out its ambitions for a £100m (€114m, $166m) marketing campaign joint-funded in partnership with the private sector to attract four million extra visitors over the next four years.

Visitor numbers remain stable at attractions

TOM WALKER

Visits to leading UK attractions stayed at 2009 levels during 2010, according to the Association of Leading Visitor Attractions (ALVA).

The association's annual report shows that there was a marginal 0.38 per cent increase in its members' visitor figures in 2010. The report, however, also surveyed attractions' views on 2011 and most are optimistic that they will experience a bumper year. Nearly 90 per cent of respondents expect their visitor numbers to increase or remain the same during 2011, while a third (34 per cent) expect revenues to increase.

The National Gallery in London, part of the ALVA network of attractions

Robin Broke, director of ALVA, comments: "The tourism industry is of huge value to the UK economy, and financially it represents an excellent return on investment.

"It is a great creator of employment, particularly for young people."

Saturn launches dedicated imagineering arm

TOM WALKER

Bristol, UK-based property and architects company Saturn Projects Group has launched a dedicated exhibition design division targeting the attractions industry. Saturn Imagineering will be making its debut at the Dubai Entertainments, Amusement and Leisure Show (DEAL) this week.

Simon Pickard, Saturn's managing director said the company will look to establish itself in the MENA region (Middle East, Africa, Mediterranean and Asia).

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€1.8m Clara Bog Visitor Centre unveiled

TOM WALKER

A new €1.8m (£1.5m, $2.6m) visitor centre has been unveiled at Clara Bog, County Offaly – one of Ireland's most important raised bogs– by former Irish taoiseach Brian Cowen. The Clara Bog Visitor Centre forms part of the National Development Plan and has been funded with the help of the Department of Environment, Heritage and Local Government. EU funding has also supported the construction of the visitor centre, which was designed and project managed by the Office of Public Works.

The new plans have finally been given funding

Stonehenge plans secure 'Big Society' boost

TOM WALKER

Tourism minister John Penrose has revealed that proposals to improve the visitor experience at Stonehenge, Wiltshire, have been put back on track with government support.

A funding package that includes private philanthropy, National Lottery cash and commercial backing is to be complemented with plans to enable English Heritage (EH) to access its reserves. Penrose has confirmed that EH will be using £2m (€2.3m, $3.3m) of its historic reserves, which have been raised from philanthropic sources.

Berlin museum secures EU design prize

PETE HAYMAN

David Chipperfield Architects' design for the Neues Museum in Berlin, Germany, has been handed the 2011 European Union Prize for Contemporary Architecture – Mies van der Rohe Award. The attraction reopened in 2009 for the first time in 70 years, following the completion of an extensive €212m (£187m, $308.5m) redevelopment project.

David Chipperfield Architects' renovation of the museum was selected for this year's award from a shortlist of six by the EU and Mies van der Rohe Foundation.

US$5m wing for Florida museum

TOM WALKER

A new US$5m (£3.1m, €3.4m) wing has been unveiled at the Charles Hosmer Morse Museum of American Art in Winter Park, Florida, US.

The attraction – home to a 'comprehensive' collection of Louis Comfort Tiffany materials – has received a 12,000sq ft (1,115sq m) extension as part of the scheme. Long-term public access will now be provided to the restored Daffodil Terrace from Louis Comfort's Long Island home at Laurelton Hall.

The new wing will house 250 art and architectural exhibits in its galleries

A total of 250 art and architectural exhibits are also on display in the new galleries, with the Laurelton Hall galleries adding 6,000sq ft (5,575sq m) of public exhibition space alone. California-based Griswold Conservation Associates headed a conservation team that worked on the Daffodil Terrace restoration, which is now installed in a new glass-enclosed gallery. Winter Park-based architects RLF worked on the scheme as well, which also included another new gallery that will act as a study room and boasts copies of books from Tiffany's library.

Holocaust museum planned for Rome

TOM WALKER

The mayor of Rome, Italy, has announced plans for the construction of the country's first Holocaust museum.

The €19m (£16.2m, $27.6m), 2,500sq m (27,000sq ft) museum is to form the focal point of Rome's 10-year 'Stati Generali' plan for major projects in the city, and will be constructed in the central area of Villa Torlonia, adjacent to both Benito Mussolini's villa and the 2,000-year old Jewish catacombs. The catacombs, currently closed, will be restored and opened to visitors.

The museum will chart the history of the holocaust and Italy's role in it

Museum director, Marcello Pezzetti said: "Italy was a partner of Nazi Germany, not a victim, as the populace generally holds.

"Unlike Germany, we have never even begun the process of soul-searching. Italians don't feel involved, they do not consider themselves as having collaborated. This museum, which will cover global Holocaust history, but have a special section on Italy, will speak directly to Italians, and not just to Italian Jews."

The museum plans were created by architects Luca Zevi and Giorgio Maria Tamburini.

Sioux City museum opened in Iowa, US

PETE HAYMAN

A new US$12.5m (£7.8m, €8.5m) downtown museum in Sioux City, Iowa, US, opened its doors to the public on 23 April.

Located on the first floor of a former department store building, the 55,000sq ft (5,110sq m) attraction is at the heart of a new cultural and entertainment district for the city.

A theatre, multi-use classrooms, offices, a conference room, temporary exhibit spaces and a gift shop are included, along with artefact and exhibition preparation rooms.

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Aussie World to introduce two new rides this year

TOM WALKER

The Sunshine Coast's Aussie World fun park is investing AUS$2m (US$2m, £1.25m, €1.45m) in two new rides, the first of which opened just before the Easter holidays.

The first ride that launched was the Giant Redback – a 24-seater Disk'O' ride manufactured by Italian supplier Zamperla – while the details of the second ride, which is due to open later this year, will be announced in due course.

The watertower will house a multi-censory film

Theme park nets Canadian government grant

TOM WALKER

L'Odyssée des Bâtisseurs theme park in Alma, Quebec, Canada is to be enhanced with the help of a CA$175,000 (£110,000, €129,900, US$177,500) government grant.

The non-repayable cash has been provided through the Community Diversification scheme to Société d'histoire du Lac-Saint-Jean Inc.

Under the first phase of work at the attraction, a multimedia, multi-sensory 360-degree film on the theme of water will be developed at the park's water tower.

China is considering plans for its own Eden Project

TOM WALKER

A new sister site for Cornwall's Eden Project could be developed in China as part of efforts to expand the concept to overseas locations.

According to the BBC, Eden Project director Tim Smit believes that work could commence on the Chinese version of the attraction within 18 months. In 2008, Smit told *Attractions Management* that discussions had started to take Eden overseas. It was also reported that Singapore is in line for a similar attraction.

2012 launch for Harry Potter tour

TOM WALKER

Warner Bros has announced plans to launch its new Harry Potter studio tour attraction at Leavesden Studios, Hertfordshire, in spring 2012. In January, it was revealed that US-based exhibition design company Thinkwell had been appointed to design the Warner Bros Studio Tour London – The Making of Harry Potter.

Warner Bros has pledged to invest £100m in developing the studios

The walking tour will enable visitors to go behind the scenes of the film series, with a range of authentic sets, costumes, animatronics, props and effects on display. Lasting three hours, the tour will allow visitors to step foot onto sets from the Potter films, such as the Great Hall, Dumbledore's office and others yet to be confirmed.

Dan Dark, senior vice president and managing director of Warner Bros Leavesden Studios, said: "The tour promises to be one of the most exciting and memorable visitor attractions anywhere in Europe."

Warner Bros acquired the studio complex last November and plans to spend £100m (€112m, US$163m) on developing the site, which produced all eight Harry Potter films.

Merlin completes Village Roadshow deal

TOM WALKER

Merlin Entertainments Group has completed the acquisition of Sydney Attractions Group and Kelly Tarlton's Underwater World from Village Roadshow.

Sydney Wildwalk is one of the attractions acquired by Merlin in the deal

The AU$115m (US$114m, £73m, €85m) deal, announced in December 2010, includes Sydney's top three tourist attractions – Sydney Aquarium, Sydney Wildlife World and the Sydney Tower Observatory and Skywalk, as well as Manly Oceanworld in Sydney, the Hamilton Island Wildlife Park in Queensland and Kelly Tarlton's Antarctic Encounter and Underwater World in Auckland, New Zealand.

Merlin will undertake a multi-million dollar investment programme for the six attractions and the company has appointed Edward Fuller as divisional director to manage the new Australia/New Zealand 'midway' division.

Fuller said: "These are exciting attractions with enormous potential.

Atlantis submarine voyage for Legoland Windsor

TOM WALKER

Legoland Windsor in the UK is to unveil a new £8m (€9m, $13.2m) attraction this summer, called Atlantis Submarine Voyage.

Part of a wider £30m (€34m, $49.6m) investment by parent company Merlin Entertainments Group, it will be the first Lego-themed underwater ride in the world.

Travelling aboard custom-built, 14-seater Lego-themed submarines, families will voyage into a 1,000,000-litre (220,000gal) tank featuring more than 50 species of rare fish.

Work begins on Nigerian resort

TOM WALKER

Construction has begun on the NGN49bn (US$268m, £167m, €190m) Delta Leisure Resort in the Warri and Asaba Cities of Delta State, Nigeria.

The large resort will be designed as a major tourist attraction and has been touted as the 'first of its kind' in West Africa. The first phase is due to open at the end of 2013.

UK-based design and AV specialist Sarner is working together with its African arm, Sarner PFM, to design and create the leisure resorts, which will cover more than 150 hectares in each of the cities.

The mega resort will include a number of attractions, including rides

The main park, located in Udu Local Government Area of Warri, will reflect the culture of the area and is set to include a waterpark, heritage attractions, a luxury spa, two hotels and chalets, a casino, golf course, a family entertainment centre, children's area, sports facilities and retail stores.

The Oleri bridge will link the park to the main road network for ease of access. Meanwhile, at Ogwashi-UKu, the Aniocha South Local Government area of Asaba, an animal reserve and wildlife park will be established.

OCT Group to open children's attraction

TOM WALKER

OCT Group is to open a new children's attraction in the city of Shenzen. The 47,000sq ft (4,400sq m) OCT Hike - Children's Professional Experience City is set to open in October 2011 and will be an educational family attraction.

California-based Mirage Entertainment has been appointed as the "total solution provider" for the venue, delivering the conceptual design stage to final operations, including hardware to software integration, information technology, marketing and sales consulting.

Videogame theme park planned for China

TOM WALKER

In addition to the various theme parks being planned for, and constructed in, China, Shanghai-based CCJoy.com is building a new attraction based on the theme of digital game culture.

The masterplan and concept design for World Digital Joyland, currently under development in the country's Wujin district of Jiangsu province, was created by California, US-based IdeAttack and comprises reproductions of virtual scenes from online games.

The World Digital Joyland is being built in China's Jiangsu province

The 100-acre (40.5ha) park will comprise five sections – Island of Mystery, Moles World and World of Legend, plus two Blizzard Entertainment-themed areas, Terrain of Warcraft and Universe of Starcraft.

Attractions to be offered are said to incorporate a range of thrill rides, including a double free-fall tower and three rollercoasters, a video games museum and an eSports centre.

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LINDA CENDES

Not all zoos and aquariums are the same. Accredited zoos and aquariums have demonstrated their commitment to the highest standards in animal care and management and also to safety, conservation, education and visitor services.

Currently, fewer than 10 per cent of the approximately 2,600 animal exhibitors licensed by the United States Department of Agriculture are accredited by the Association of Zoos and Aquariums (AZA). By becoming centres of excellence in animal care, conservation and education, accredited zoos and aquariums gain the trust of the public, who report in opinion polls that high standards are important.

> "The AZA logo assures guests that they're supporting an institution dedicated to providing the best care for animals"

The AZA accreditation process includes a detailed application and a meticulous on-site inspection by a team of trained zoo and aquarium professionals. The inspecting team observes all aspects of the institution's operation. Accreditation is then granted or denied at a formal hearing.

Zoos and aquariums must go through the full accreditation process every five years, as AZA-Accreditation Standards are continuously being examined and raised.

In addition, as a member, the zoo or aquarium can participate in cooperative animal exchanges for loan and/or breeding. This includes participation in AZA's Species Survival Plan program, which allows for the sharing of a number of threatened and endangered species.

By looking for the AZA logo at a zoo or aquarium, guests are assured that they're supporting an institution dedicated to providing the best care for animals.

Linda Cendes, program assistant, communications, AZA

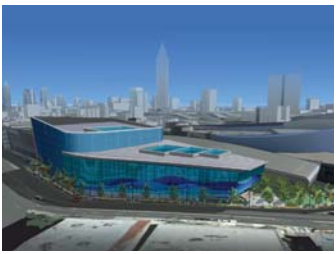
Georgia Aquarium expands

TOM WALKER

Georgia Aquarium's newest and biggest addition – its sixth permanent gallery – opened to the public on 2 April.

A US$110m (€76m, £68m), three-year project, AT&T Dolphin Tales focuses on creating a greater understanding of dolphins, traditionally the most-requested animal by visitors to the aquarium.

Incorporating a number of different spaces, the new PGAV Destinations-designed gallery includes an entrance lobby featuring a 25ft (7.6m) underwater viewing window.



The latest addition to the aquarium is also the largest single gallery

The lobby leads to the AT&T Dolphin Tales theatre, an enclosed facility designed and built as a backdrop for a show involving dolphins and live actors, and featuring special theatrical effects. AT&T worked with the aquarium to develop and support a number of different tools aimed at highlighting and promoting dolphin-, gallery- and show-related content, both in person at the aquarium and online.

The Georgia Aquarium – located in Atlanta, Georgia – is the world's largest, with more than ten million gallons of water and the biggest collection of aquatic animals.

BIAZA reveals 'value' of zoos/aquariums

TOM WALKER

A new study from the British Association of Zoos and Aquariums (BIAZA) has found that the sector is worth around £645m (US$1.1bn, €725m) to the UK economy each year. John Regan Associates carried out the economic impact assessment of the sector on behalf of BIAZA, which showed that animal attractions create more than 11,000 jobs.

Zoos and aquariums generate £645m for the UK economy each year

Visitors to UK zoos and aquariums spend £246m (€278m, $407m), while off-site expenditure is worth a further £198m (€224m, $328m) to the economy.

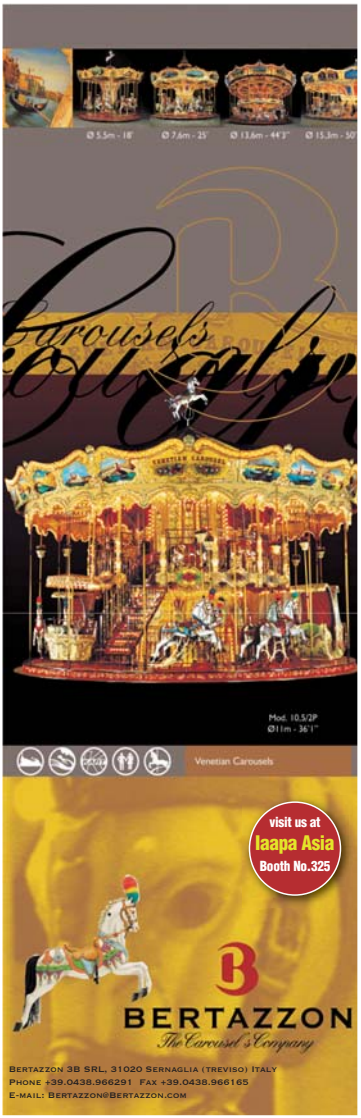
BIAZA member attractions welcomed 25 million visitors during 2010, more than 1.2 million of which were on educational trips. More than 600 research projects were carried out, with BIAZA members supporting more than 700 conservation schemes contributing more than £11m (€12.4m, $18.2m) each year.

London Zoo to open £2m penguin pool

TOM WALKER

London Zoo in the UK will open the largest penguin pool in England later this year.

The £2m (€2.3m, US$3.3m) Penguin Beach, the Zoo's brand new flagship exhibit for 2011, will be home to nearly 150 Macaroni and Humboldt penguins when it opens on 27 May. The new penguin colony will live in a purpose-designed pool which will hold more than 450,000 litres of water, making it four times bigger and three times deeper than the current penguin enclosure.



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One brand sees industry growth despite economic challenges

ALEATHA EZRA

If you want to gauge what 2010 meant for the amusement and waterpark industries in Europe and beyond, look no further than a recent report from Merlin Entertainments. Europe's leading and the world's second-largest visitor attraction operator, Merlin Entertainments' brands include Legoland, Alton Towers Resort, Madame Tussauds, Sea Life, Warwick Castle and many others.

In a recent report, the company states that total visitors to all of its parks increased by 6.5 percent to a total of 41 million visitors in 2010. In addition, group revenue rose 4.1 per cent and underlying group EBITDA rose 8.5 per cent.

> "If you want to gauge what 2010 meant for the amusement and waterpark industries, look at Merlin's report"

Thanks to the solid results in 2010, the company is moving forward with continued expansion and investment in 2011. Merlin Entertainments' chief executive, Nick Varney, said: "In the past year we've continued to invest to grow and develop our business. We now operate more than 70 attractions in 17 countries across four continents under our internationally recognised brands. Looking ahead, we have accelerated our growth plans and by the end of 2012 we will be operating more than 80 attractions as we develop further across Europe, North America and the Asia Pacific region."

The company credits its success in 2010 to the opening of innovative new rides and attractions and positioning its facilities as destination stays of two to three days at a time. Fellow operators, take note!

Aleatha Ezra, membership manager, World Waterpark Association

Evergreen Waterpark to open

TOM WALKER

The Evergreen Aviation & Space Museum in McMinnville, Oregon, US is to open a non-profit, educational waterpark on 6 June.

The Evergreen Wings & Waves Waterpark, said to be the US's only educational and aviation-themed waterpark, has already filled its 91,703 gallon wave pool with water in anticipation of the park's grand opening.

Features include a real Boeing 747 mounted on the top of the waterpark

The waterpark will boast a total of 10 waterslides – supplied by WhiteWater – a wave pool and a children's museum dedicated to teaching students about the power of water.

The park will feature more than 70,000sq ft (6,500sq m) of educational entertainment, highlighted by an Evergreen International Aviation-themed real Boeing 747 aircraft that rests on the top of the building. Amenities also include a leisure pool and spa, a restaurant, play structures and a toddler play area. Anderson Poolworks supplied the pools and Water Odyssey provided the play features.

The waterpark is being built by Hoffman Construction with Counsilman-Hunsaker acting as waterpark consultants and Group Mackenzie as lead architects.

US$3.4bn waterpark resort for Bahamas

TOM WALKER

A ground-breaking ceremony has been held to mark the start of work on the construction of the US$3.4bn (£2bn €2.3bn) Baha Mar resort development in the Bahamas.

The resort has partnered with China State Construction Engineering Corporation (CSCEC) to deliver the complex, which will be built in one phase and is due to open in late 2014.

The Baha Mar leisure resort will be anchored by a large waterpark

The resort will be anchored by a 20-acre (8.1-hectare) eco-water park and pool experience. Other facilities include a 700-room convention hotel operated by Hyatt Hotels Corporation, a 200-room luxury hotel operated by Rosewood Hotels and Resorts and a 300-room lifestyle hotel operated by Morgans Hotel Group. More than five acres (two hectares) of convention and meeting facilities will also be provided as part of the property, which will be centrally located in the Baha Mar corridor – the Podium.

WhiteWater West opens regional office in Shanghai

TOM WALKER

Waterpark design company WhiteWater West is to open a new office in Shanghai, China.

The new office – WhiteWater West's 15th worldwide – will allow the company to meet the growing demand in China as well as improve service to existing clients. Established in 1980 and specialising in waterslides, WhiteWater supplies some of the most successful waterpark attractions in the world. Its expertise includes park planning, engineering, manufacturing and installation.

Greenland gallery plans unveiled

TOM WALKER

A team comprising Bjarke Ingels Group (BIG), TNT Nuuk, Ramboll Nuuk and Arkitekti has been chosen to design a new national gallery in Greenland. BIG's concept for the 3,000sq m (32,292sq ft) Greenland National Gallery of Art was selected ahead of five rival entries, following a design competition.

An artist's impression of the winning design by a team lead by BIG

Located on a slope overlooking a fjord, the attraction will feature a combination of historical and contemporary artworks under one roof.

Greenland National Gallery of Art will feature a circular design to enable exhibitions to be divided up into various sizes and shapes.

Visitors will access the exhibition through a lobby offering a 180 degree panoramic view of the fjord and sculpture garden, with the building designed to appear as a piece of land-art.

Bjarke Ingels said: "We propose a national gallery which is both physically and visually in harmony with the dramatic nature, just like life in Greenland is a symbiosis of the nature."

Ramboll director Stephen Melville added: "There are many hidden challenges in the structural engineering of the building."

Arts philanthrophy scheme consultation starts

PETE HAYMAN

An informal consultation into an £80m (€91m, $132.4m) match funding scheme to boost arts philanthropy has been launched by the government and Arts Council England (ACE). A series of round-table discussions with arts leaders will set out further details of the new approach, which was proposed in the Davey Report on Endowments in the Arts.

The scheme is one of a series of measures designed to help build the skills of arts groups to secure philanthropic donations.

Hobart's Museum of Art opens

TOM WALKER

Museum of Old and New Art (MONA), a new 9,500sq m (102,257sq ft) attraction designed by Fender Katsalidis Architects, has opened in Tasmania, Australia.

The museum is located on a 3.5-hectare peninsula overlooking a river

Located on a 3.5-hectare (8.6-acre) peninsula overlooking the Derwent River, the museum is a three-level building excavated into the cliff face adjacent to Hobart's waterfront. MONA boasts a total of 6,000sq m (64,583sq ft) of gallery space, which incorporates 1,300 sq m (13,993sq ft) of touring gallery provision.

A 65-seat theatre for time-based arts and a 1,775sq m (1,905sq ft) library also feature as part of the new museum, which opened to the public last month. The man behind the scheme, David Walsh, said the building is intended to be "deliberately underwhelming" and aims to allow visitors to immerse themselves.

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Visitor Expectations

HANS GUBBELS

Visitor expectations used to be simple. A zoo was somewhere to watch animals and discover which part of the world they originated from; a theme park was a place where you had to be courageous enough to be exposed to unknown forces; and a museum was there to learn about heritage or see art.

People's daily routines were also organised and there was time dedicated for eating, work, travel and watching television. Today most of our activities have merged and we've become multi-taskers. While travelling in the car, we drink coffee, speak on the phone with the office and watch video messages on smartphones while waiting for the traffic lights to change. We haven't seen the end yet.

> "Take note of other sectors. They can help you meet the high expectations of the 21st century visitor"

Visitor attractions are organised in sectors – amusement, zoos and aquariums, science centres, museums and so on. These sectors are professionalised and produce excellent conferences – the upcoming Ecsite Annual Conference 2011 at Copernicus Science Centre in Warsaw, Poland, is a fine example.

But I urge all of you to take note of developments, knowledge and experiences in other sectors, as they can help you achieve your goals more effectively and meet the high expectations of the 21st century visitor.

Discovery Center Continium in Kerkrade, The Netherlands, re-opened in 2009 presenting a mix of museum, science centre and theme park elements. According to surveys, our centre's visitor expectations are being met. Now we face the ongoing challenge of granting people's wishes to enjoy new experiences each time they visit. Who has the solution for this one?

Hans Gubbels, president of Ecsite and director of Continium Discovery Center, NL

Saint Louis expansion to open

TOM WALKER

The Saint Louis Science Center (SLSC) in St. Louis, Missouri, US, will open a new expanded exhibition hall in July 2011.

The permanent space is part of the centre's strategy to increase its capacity to house travelling exhibitions and major events.

The 13,000sq ft (1,210sq m) addition, designed by PGAV Destinations and built by Alberici Constructors, will connect to the east side of the science centre, just south of its main entrance.

An artist's impression of how the new science centre will look

Museum officials said the Exploradome, the bubble-like structure just west of the science centre's main building, is nearing the end of its life span and needs to be replaced.

Doug King, president and CEO of SLSC, said: "We've always planned to replace the Exploradome with a permanent exhibition space that fits our needs and that will also enhance the façade of our building and our visitors' experiences."

The project has been funded by donations from both private and corporate donors while privately placed tax-exempt bonds are also being issued to provide bridge financing.

Innovation centre plans for Oxford

TOM WALKER

A new 25,000sq ft (2,323sq m) innovation centre to help support entrepreneurs and start-up firms has opened in the centre of Oxford.

Launched in March by Science Oxford, the facility forms part of the site that will also feature a £30m (€34m, $49.7m) science centre designed by Foster + Partners. Science Oxford has acquired Macclesfield House – a former county council building – that is to provide the location for a cultural centre for enterprise and will open by 2015.

The new centre is located in the heart of the historic city of Oxford

Macclesfield House has been rebranded as the Oxford Centre of Innovation and provides offices and business support for up to 30 firms. Oxford Innovation runs the facility.

Science Oxford chief executive Dr Ian Griffin said: "Our plan is to give Oxford a public face for science and enterprise and to create a major tourist destination."

At-Bristol gets go ahead for Real Brain Exhibit

TOM WALKER

The Human Tissue Authority (HTA) has given the green light for At-Bristol science centre to launch an exhibit featuring a real human brain. The £1.5m Real Brain exhibit will consist of a large tank, engraved with the image of a person on one side and the skeleton and central nervous system on the other. In the position of the brain will be the real human brain, showing both the right and left hemispheres. The Real Brain exhibit will feature as one of the key exhibits within the Brains zone.

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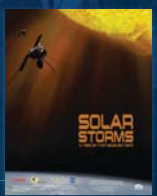

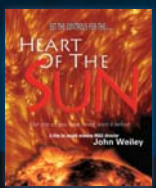

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ROBERT FIRMHOFER

Copernicus, Poland's first science centre, is about to add to its six exhibitions with a 16m domed planetarium, just in time to host Ecsite. The director, Robert Firmhofer, tells Kathleen Whyman how Copernicus has become a symbol of modernisation for the country

"Convincing people that Poland needed a science centre was a challenge because no one knew what a science centre was," recalls Robert Firmhofer. "They'd never even seen an interactive exhibit so couldn't appreciate how effective and important they are in aiding understanding and learning."

Firmhofer is now the director of Copernicus, one of the most advanced science centres in Europe. Presenting science as part of culture, using social science and humanities, the centre opened last November with five galleries, a Robotic Theatre and a rooftop garden. It has since added another gallery aimed at young adults and a convention centre, and will be opening a domed planetarium and surrounding park in June, with a soft opening at Ecsite in May. Four laboratories will open in September for physics, robotics, chemistry and biology.

In its first four months of operating it received 250,000 visitors, far exceeding the predicted annual attendance of 400,000. It's clear that not only did Firmhofer succeed in convincing people that the country needed a science centre, he also convinced people to visit in their droves, but how?

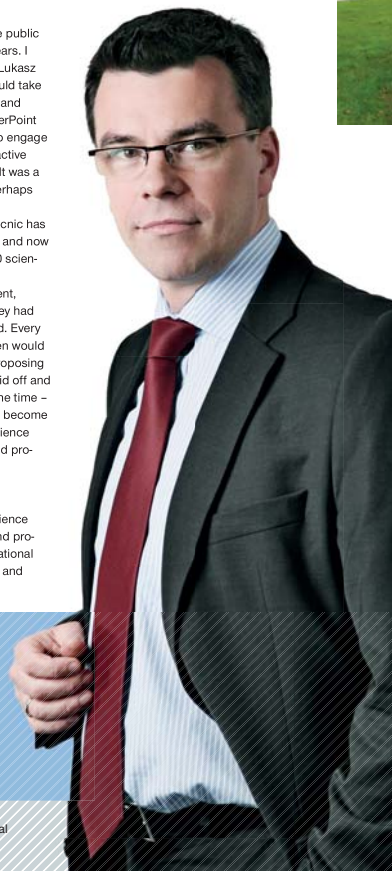
"It all started in 1997 with a science picnic in the city, " Firmhofer says. "I was the editor-in-chief of science in the public media for Polish radio for many years. I was approached by the physicist Lukasz Turski to arrange an event that would take scientists out of their laboratories and lecture halls, away from their PowerPoint presentations, into a neutral site to engage with people through simple, interactive experiments rather than lectures. It was a completely crazy idea, which is perhaps why I liked it from the beginning."

Fifteen years on, the Science Picnic has become an annual one-day event, and now attracts 100,000 people and 1,000 scientists from 20 countries.

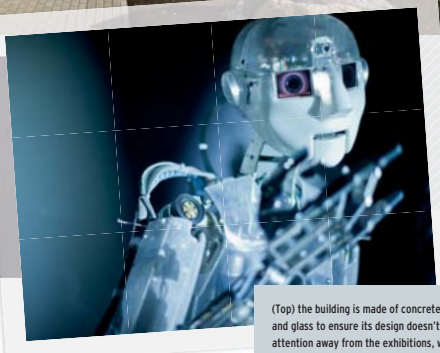
After the success of the first event, Firmhofer and Turski knew that they had to build a science centre in Poland. Every year, after each picnic, the two men would approach the mayor of Warsaw proposing the concept. Their persistence paid off and in 2003, the mayor of Warsaw at the time – the late Kaczynski who went on to become president – and the Minister of Science agreed to establish this project and provide government finances for it.

THE DESIGN

Work began on developing the science centre and planning its exhibits and programmes straight away. An international design competition was launched and



"Convincing people that Poland needed a science centre was a challenge because no one knew what a science centre was"



(Top) the building is made of concrete, steel and glass to ensure its design doesn't draw attention away from the exhibitions, which include the Robotic Theatre (bottom)

awarded, in 2005, to a Polish architect, Jan Kubec, from the firm RAr-2. Located in the centre of Warsaw, in direct proximity to the Vistula River, the appeal of the design was its creation as a part of the riverbank's landscape. The rooftop garden represents the vegetation on the riverbank before urbanisation – how it would have looked before Warsaw was built. "The building has many open spaces and is made from concrete, steel and glass," explains Firmhofer. "It's extremely transparent and is a very simple, plain design, so it doesn't distract from the content – the exhibits are still the main focus. Crater-like, glass structures on the rooftop garden allow visitors to look down into the building at the exhibits below."

While the décor of the building is simple, its construction is the opposite. Copernicus is the first building located directly on the riverbank, as the Vistula river is cut off from the city by a highway. The highway is hidden in a tunnel and the science centre is suspended 20cm (8in) above the tunnel. The two-storey building has 20,000sq m (215,000sq ft) of floor space, plus the surrounding two-hectare Discovery Park, which is a communal space. "We didn't just create the exhibition in the building, we also created part of the city," says Firmhofer. Both the Discovery Park and the rooftop garden are open for free to everyone. "We encourage people to use them," he says. Both areas have interactive exhibits and the park has its own art gallery with clay models and a stage on the water for shows, concerts and films.

THE EXHIBITS

Once inside Copernicus, there are 450 interactive exhibits throughout six galleries. These are spilt into: On the Move, which presents everything that moves from electrons to galaxies to human bodies; Humans and the Environment, about human biology and people as a part of society and urban environment; Roots of Civilisation, demonstrating how maths, science, technology and arts formed our civilisation; Lightzone, which uses a crime story to explain electro-magnetic waves; Buzzz!, where children up up to six-years-old can discover nature through shapes and sounds; and the most recent gallery, Re:generation. Targeting young adults, the gallery explores psychology, sociology and discovery while showcasing cutting-edge technology. One of the most popular exhibits is Felix the Robot, which shows empathy. Developed by the Fraunhofer

Copernicus' rooftop garden features the kinds of vegetation that would have been there before Warsaw was built and is an open communal space, free for all to use

Institut for the Re:generation gallery, the robot recognises facial expressions and mimics these movements and emotions.

"Another innovative offer is the Robotic Theatre," says Firmhofer. "It's probably the first of its kind in the world. Three robots, produced by a British group called Engineered Arts, perform on stage and interact with a cartoon projection. This is a very popular part of our exhibition."

The eagerly-awaited digital, 3D planetarium is also set to prove popular. Opening in June and called Heavens of Copernicus, it will be set within a 16m (52ft) domed theatre, encased in a striking boulder-shaped building. Shows will either be presented using a classic optical projection, where stars and planets are projected onto the dome, or using a digital system created by Sky-Skan, who also designed the studio and produced the show (see p26).

The shows will cover astronomy, cosmology (the history of the universe and life in the universe), evolution (showing Darwin's trip on the Beagle and his development of the theory of evolution and natural selection) plus cartoons for children. "We also plan to present musical shows in the evening to attract young people," says Firmhofer. "We'll include a little astronomical background, just a presentation of the stars, in the hope of inspiring them."

MASS APPEAL

Firmhofer and Turski's aim was always to make Copernicus a place for everyone. Consequently, the interactives range from pre-school to complex exhibits that are too complicated for children. The plan's worked as more than 20 per cent of visitors are adults and seniors without children. Firmhofer is aware that the Polish public is quite unique in its interest in science. "I've been told by European colleagues that the phenomenal success and engagement of the adult public at the science picnic wouldn't have been possible in London or Berlin or Paris," he says. "Perhaps it's because the Polish society struggled for so long for modernisation. Now it's very willing to learn and move forward."

While the huge popularity of Copernicus is very welcome, it has posed a slight problem with group bookings far exceeding the number anticipated. To cope with demand, the science centre is loaning travelling exhibitions to schools, training teachers to educate their pupils and encouraging people to visit local science centres close to where they live. "There's a growing family of science centres in Poland," explains Firmhofer. "We meet every year to exchange best practise and programmes. We know each other very well now and are achieving mutual goals much better together than separately."

ECSITE

Firmhofer's enthusiasm for working with others in the industry makes Copernicus the perfect host for Ecsite, the annual event for the European network of science centres and museums, which visits Warsaw in May. "Hosting a convention for up to 1,000 visitors is a big challenge, especially when the delegates are experts in the field," says Firmhofer. "But it's a fantastic opportunity to promote Copernicus as a reliable partner in creating exhibitions and taking part in international projects.

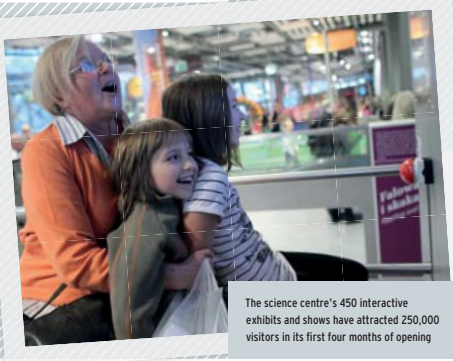
"Because of the location, it also provides a good platform for Europeans to meet. It's the furthest east of the Ecsite conferences so far and we're working hard to receive guests from Eastern European countries, such as Russia, Serbia, the Czech Republic and the Baltics. There are a grow-

ABOUT ROBERT FIRMHOFER

Hobbies: **Travelling off the beaten track, science communication, political philosophy, reading contemporary fiction and jazz music**
Favourite food: **Mussels, sushi and Italian cuisine**
Favourite film: ***Blowup*** **by Michelangelo Antonioni, *Apocalypse Now* by Francis Ford Coppola and almost every Woody Allen movie**
What drives you: **Challenges. I'm more than ready to face them**
Describe yourself: **I'm an active person enjoying my professional and private life**
How would others describe you: **I wouldn't dare to guess**
Best advice you've ever received: **Find time to sit back and think things over again. I keep doing it**

Felix the Robot was specially designed for the Re:generation gallery and shows empathy. It recognises people's facial expressions and recreates the movements

"Perhaps the Polish are so interested in science because we struggled with modernisation for so long. Now we're very willing to learn and move forward"



The science centre's 450 interactive exhibits and shows have attracted 250,000 visitors in its first four months of opening

ing number of initiatives in the east, which I hope will be heard at this conference."

Firmhofer also feels that Ecsite's theme this year of freedom makes Copernicus the ideal venue. "Freedom is one of the most important notions of modern Poland and Warsaw is the city of freedom," he says. "The country's history – the Warsaw uprising in 1944, the Solidarity Movement – was all about striving for freedom for many years. Now it's about how to tackle freedom and how to use it for our development.

"Also, the science centre movement is about freedom," he continues. "At Copernicus, there's no set route to follow; visitors conduct their experiments and are free to succeed or fail. We don't give them too many answers, instead we provide inspiration and opportunities and allow them to reach the solutions. So, freedom represents both Copernicus and Warsaw."

Despite such an impressive start, Firmhofer's already looking to evolve and develop the science centre. "There will be a constant improvement in what we do," he says. "We've begun to enhance the programmes and exhibits we have. We want our programmes to influence the formal education system and for students to expect teaching to be an involving and engaging process." Another area being looked at is social media. "We have 20,000 fans on Facebook and are working out how we can get them actively involved."

This dedication to sharing, enthusing and engaging people has helped the science centre become so popular so quickly. "Copernicus is regarded as a symbol of modernisation in Poland," says Firmhofer. "This is exactly why we built it – to present science and technology as the main means of modernisation of the country, and to provide a good, modern scientific education. We're not just an attraction – we're here to influence society." ●

HEAVENS OF COPERNICUS

A 16m domed planetarium is the finishing touch to Poland's Copernicus Science Centre. Sky-Skan's managing director, Glenn Smith, tells Kathleen Whyman how he and his team designed a cutting-edge system

The 16m planetarium is housed within an unusual boulder-shaped dome

What was your brief?

The 16m (52ft) domed planetarium, called Heavens of Copernicus, is placed within the science centre's existing architectural structure. The customer wanted a projection system with as high a resolution as possible, using projectors with high contrast. The spec also called for a classic star projection instrument with LED illumination and electronic shutters.

On a domed screen, the projector contrast is of little value, but it plays a role when projecting a few dots or lines together with the classic star projector. Any grey background from the video projectors is a distraction to the star projector, but our projectors have a very dark background.

Why did the project appeal to you?

Heavens of Copernicus is the gemstone of the new science centre and a major project for Eastern Europe. The client is very open to new ideas and to creating a contemporary facility in which to do new and exciting things. It's a very exciting project to be a part of. The museum opened in November and recent polls show that 60 per cent of visitors are looking forward to the planetarium and think it will be the most exciting part of the museum. The museum's always full and the line stretches out of the door to the street. It's exciting to see the public so enthusiastic about a science centre and we're proud to be involved.

What content will there be?

We've provided a dozen shows on various topics as part of our package. The client has also obtained shows directly from producers including Mirage3D in The Netherlands. These will be combined with in-house programs using the real-time capabilities of our system.

Part of our responsibilities was delivering a sophisticated production suite complete with multiple workstations, file server and render farm, as well as a mini projection dome and fisheye video projector for offline production. We've given them some training and the operator's working with other experts to develop their production skills and program offerings.

What work are you doing?

We're using a high-resolution projection system, quality optical star projector, cinematic surround sound, advanced LED lighting and a multi-channel laser system. It will be the first purpose-built 3D stereo planetarium in Europe. With the combination of the 16m screen, the 3D stereo technology and our DigitalSky software, this theatre will represent cutting edge performance. The operators are gearing up to use all of this technology to the full to engage the public in science.

What technology is used?

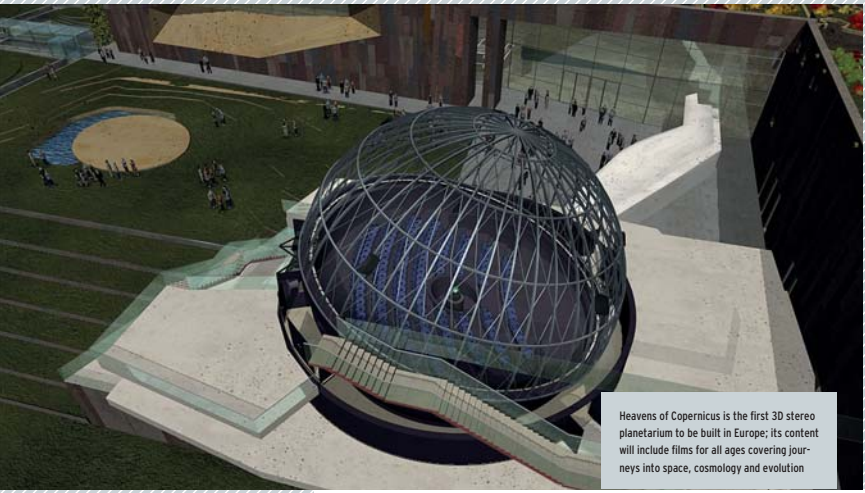
Our Definiti 3D System is comprised of 4 JVC DLA_SH7 NLG projectors fitted with special optics that we designed specifically for use on dome screens. Sixteen channels of our own design graphics servers, each running at 2048x1200 pixels, will feed the projectors (four to each one) and our software brings it all together into a seamless full dome image.

The star projector is a Megastar IIA from Ohira-Tec in Japan. This will be the first

Sky-Skan has installed its new LED Cove EX lighting system at the planetarium

THE SUPPLIERS

- JVC by Videocation, Munich
- JBL speakers with Crown Amplifiers and Yamaha Signal Processing
- HB Lasers, LED Lighting and show control technology by Sky-Skan, Munich
- Megastar IIA star projector by Ohira-Tec, Japan
- Nano-seam dome from Spitz Inc, US
- HP technologies from Datatronix Consulting, Munich



Heavens of Copernicus is the first 3D stereo planetarium to be built in Europe; its content will include films for all ages covering journeys into space, cosmology and evolution

"Heavens of Copernicus is the gemstone of the science centre. The client is very open to creating a contemporary facility in which to do new and exciting things"

IIA in the World and the first Megastar in Europe. Lasers are being provided by HB Lasers of Germany, and we're providing LED dome lighting that we designed specifically for planetariums.

The sound system is based on our years of experience in providing sound for dome theatres. JBL speakers are built with modifications to enhance performance in a dome environment.

Using 18,000 watts of amplification and digital signal processing allows us to customise the performance to accommodate any range of programme materials.

How does the technology work?

The 3D stereo technology is based on interference filters provided by Infitec of Ulm Germany. Originally designed by Daimler for use in-house, Infitec is unique in that it allows 3D to function in full colour and from any viewing angle in a dome, without a special screen coating. This means we can switch smoothly between 2D and 3D. Our Spice Automation product keeps all systems running from one control point.

What are the challenges of working within a 16m dome?

Not too many – 16m is a great size. It's large enough to give an open, airy feeling and the illusion of infinite space when in the dark, but at the same time it's not too large a screen that we're challenged with projection technology performance.

However, the dome screen was tilted very low to make the theatre more immersive, but this position didn't factor in the fact that we have to mount very large projectors under the dome to project the images. Our solution was to raise the dome slightly and cut a large hole in the concrete floor to sink the projectors into.

Another problem was the acoustics. The theatre had a reverb time of more than one second, so we arranged to have the complete theatre recoated with acoustic dampening material to bring the reverberation time back to a low and manageable number. Now we're installing the dome screen (a nano-seam dome from Spitz Inc) and the audio system.

The rest of the equipment is being installed in by April ready for the soft opening in May and official opening in June. I expect there will be a few more challenges before we're done! ●

THE MUSEUM OF LIVERPOOL

The world's first national city museum opens in July. Director of urban history Janet Dugdale tells Kathleen Whyman how the striking building is being used to tell the story of Liverpool's people and its role in global history

Please describe the museum

Opening in July, the Museum of Liverpool (MoL) is devoted to the story of Liverpool on an international, national and local scale. It will be the world's first national museum that's dedicated to the history of a regional city. Costing £72m (€82m, US$117.4m), it's the largest newly-built national museum in Britain for a century.

The striking, purpose-built building is set right on Liverpool's waterfront and covers 10,000sq m (108,000sq ft); 8,000sq m (86,000sq ft) of which is public space. Set over three floors, there are four very big galleries and three smaller ones. It's unusual to build from scratch, especially on such a large scale, so has been fantastic to design the spaces we need for the collections and the stories we want to tell and to really think about sustainability and future-proofing our ideas. The museum's flexible in terms of how the galleries are set up and the exhibition system allows us to easily reconfigure and change, so we can display more items over time.

The location is very important. Placed at the heart of the city's waterfront looking into the city, the museum also looks out over the River Mersey to the Irish Sea and the Atlantic Ocean. Liverpool is a place many people, ideas and goods have passed through and it has interacted in national and global histories.

To amplify that, the two major galleries on the second floor – The People's Republic and Wondrous Place – have fantastic, huge windows. One looks over the river and the other looks out over the city.

Where did the inspiration for the MoL come from?

MoL has evolved from the Museum of Liverpool Life, which was a very successful museum for its size from 2000 to 2006. We went from having 100,000 visitors a year to 350,000 visitors and the museum didn't have the facilities to cope with those numbers or to develop.

As well as knowing there was a real appetite for Liverpool history, we needed somewhere bigger to show our collection. We have some fantastic material including some very large objects, particularly transport industry objects that we didn't

PHOTO: ©MILLS MEDIA

(Left) The city's landscape is an exhibit in itself with the building doubling up as a viewing platform as well as a museum

PHOTO: 3XN

The £72m Museum of Liverpool is the first newly-built museum to open in Britain in more than a century

PHOTO: PHILIP HANDFORTH

The design incorporates the form of a ship, as the site was formerly a shipyard

THE VISITOR EXPERIENCE MASTER PLANNERS

3XN's principle, Kim Nielsen, describes the architecture

"When you design for a heritage site, such as Liverpool's harbour front, it's important to add something that wasn't there before or there's no point in building anything. We've created a new destination for the Liverpudlians to come to which, as well as being a museum, is a viewing platform across the city and the sea.

The museum's on a bridge construction in the shape of the letter X with two large staircases in the centre. The four points of the cross represent the four points of entry into the city. It also gets around the challenge of building over a tunnel, which runs beneath the dock.

The museum stands on a former shipyard, so we incorporated the form of a ship into the design. All the harbour buildings are made of stone and we used stone to ensure the museum complements and pays homage to its surroundings.

The inside is a very flexible exhibition structure but the outside has a strong, iconic design. It's a very penetrable structure – visitors can walk through the cross without entering and get a glimpse inside at the exhibitions."

have the space to show. Another aspect was Liverpool's role in global history. We felt that a city like Liverpool, which is often considered as second to London, really needed a proper exploration of its place as a city and how it's developed.

There's a growing interest globally in museums that tell the story of people and deal with some of the harsh realities of cities, and that explore a sense of place and identity. We felt placed to be part of that.

Another element is the social purpose of a museum to help people explore their past, but also to be a place for discussing the present and the future. This is a very real and tangible way for a city museum to become a part of that.

What is the content?

The whole museum has been developed from a story-led approach rather than a collections-led approach and we've selected key stories. These are structured into four core themes: the Great Port, Global City, People's Republic and Wondrous Place, which will be located in four large gallery spaces. Another key area will be the History Detectives interactive resource centre, which includes a timeline.

The ground floor of the museum will look at the urban and technological evolution of the city and the impacts of national developments – the Industrial Revolution, the fortunes of the British Empire and the consequential economic impact that these had on the city's development.

The upper floor of the museum will explore the social history of the city, charting the background of human settlement in the area from Neolithic times to the present day, and analysing migration, the growth of communities and the diversity of cultures, which together give Liverpool its strong and particular identity.

The museum is a starting point and one of our aims is to encourage visitors to go and explore the city and find out more.

We'll be opening on July 19th 2011 with the Wondrous Place, People's Republic, Global City, Little Liverpool and the Skylight galleries. Further community spaces and a 192-seat theatre will open in a second phase towards the end of 2011, as well as the remaining galleries The Great Port, Liverpool Overhead Railway, History Detectives and City Soldiers.

What interactives will there be?

The whole museum is very interactive. We have at least 70 films, touchscreens, multimedia stations and hands-on interactives. One of our major galleries on the ground floor is Little Liverpool, which is targeted at children under-six. There's an A to Z of objects, all of which are interactive and that also encourage our young visitors to go out and use the rest of the museum.

We've developed two touch models, one of Liverpool's Pier Head and one of the Albert Dock. There are many opportunities to touch, get closer and discover more, which should generate repeat visits.

How are you tackling topics?

All of our galleries have a contemporary element to them. Many of them start by looking at how people view something today and then explain why it's that way. The two most contemporary galleries are People's Republic and Wondrous Place.

THE DESIGNERS

Haley Sharpe's Nicky Harding and Virginia Petrie describe their design

"As lead designers, we were responsible for Wondrous Place, Global City and Little Liverpool galleries, plus the atrium spaces. We also designed the flexible exhibition system.

The challenge in the Wondrous Place gallery was to convey the huge diversity of creativity in Liverpool. By exploring different concepts we came up with the idea of ripples throughout the city, which manifested themselves into huge, illuminated cylinders that utilise the height of the gallery. Hung high, so people look up at them, the light levels change and correspond with the show times of the two immersive theatres. They'll look very striking at night when seen from outside through the huge windows.

Global City is a much smaller gallery and focuses on Liverpool's trade links with the world. Little Liverpool introduces children to museums using the alphabet and objects, interactives and models. A large window display engages people both looking out and looking into the building.

For the exhibition system we created a series of modular cases, which can be joined together and reconfigured. We also have a series of walls and units that can have their contents changed."

Redman Design's Sarah Bell, Becky Jarvis-Stiggants and Stephen Marsh explain their work

"We're responsible for the People's Republic gallery, Port City and History Detectives and Liverpool Overhead Railway.

The aim of People's Republic gallery is to give the impression that the visitor is stepping into the city – it's busy and densely populated with stories of people, which can be heard, read, seen and experienced.

Port City tells the story of one of the world's first docks and houses large exhibits including the Lion steam locomotive plus an ice sculpture rising to the Timeline. We've taken a restrained design approach so that the objects take centre stage.

The Liverpool Overhead Railway gallery, situated above Port City, acts as a bridge between the two gallery spaces. It features an original restored railway carriage, 'talking head' accounts from former workers and travellers, digital animations of the railway's routes and film footage shot from the Overhead Railway by the Lumière brothers."

PHOTO: ©NATIONAL MUSEUMS LIVERPOOL AND HALEY SHARPE DESIGN

(right) Wondrous Place gallery celebrates Liverpool's diversity in creativity

PHOTO: ©MILLS MEDIA

PHOTO: ©NATIONAL MUSEUMS LIVERPOOL

(Top) the atrium's elliptical spiral staircase leads from the ground floor up to the Skylight gallery; (above) the Lion steam locomotive, made in 1838

People's Republic looks at the social impact of living in the city with statistics of health, deprivation, housing and educational attainment. One of our challenges is that we're living in a city that, despite being European Capital of Culture in 2008, remains one of the most deprived cities in England. The role of the museum becomes very important in terms of being open and honest, but also potentially being a supportive place for discussion about change.

One strand of interpretation is called Our City, Our Stories. We've worked with community groups to develop the stories and displays. We're also using many Liverpudlian voices throughout the museum. We've done a huge oral history project throughout the last five years, which we've called 800 Lives. That first person testament is very important to us.

What are the key pieces?

The Liverpool Map is an iconic, glass sculpture and is the museum's centrepiece. The 3D structure features many layers of sheet glass, each printed with different imagery and designs fused into a solid block depicting Liverpool as a city defined by culture and heritage, rather than geographical lines. People can look through the glass structure onto the city itself.

In Wondrous Place gallery we have two immersive film theatres. The first film examines the passion of being a football fan and what football means to the city – it's an emotional film that's projected on a large scale all around visitors and onto the floor. The second film is about The Beatles. This theatre contains the actual stage from St Peters' Hall where John Lennon was playing in 1957 when he met Paul McCartney. It's a spine-tingling moment as it was on this stage that it all began.

One of the larger artefacts is the last remaining original carriage from the Liverpool Overhead Railway that ran along the docks from 1893 to 1956. It was the first electrified, elevated railway in the world. We also have a Lion steam locomotive from 1838, which ran on the Liverpool Manchester railway. It was the first timetabled passenger railway in the world.

What is the MoL's design?

When you go into the building, there's a wonderful elliptical staircase that spans

PHOTO: © NATIONAL MUSEUMS LIVERPOOL

(Above) The Liverpool Map is created from layers of sheet glass, which enable visitors to look through the map onto the city itself

THE VISITOR EXPERIENCE MASTER PLANNERS

BRC Imagination Arts' vice president Christian Lachel explains his work

"BRC Imagination Arts collaborated closely with National Museums Liverpool (NML), the Museum of Liverpool content team and the architectural planning team to develop the conceptual plan and schematic design for the museum.

This includes a hands-on History Detectives gallery that will provide close encounters with real objects from the NML's vast object collection. Central to the planning work was the design of a flexible exhibit infrastructure that will enable the MoL to update its exhibits and programs frequently and allow city residents to have a voice in the curatorial process."

BRC's conceptual plans for the museum include the Global City gallery (right)

the whole height of the building, which is 23m (75ft) from the ground floor to the second floor. This creates a wonderful atrium space on the ground floor and right up to the Skylight gallery.

The building is angular from the outside. It has a wonderful façade – a series of panels made from jura limestone. They catch the water's reflection and change colour at different times of the day and year. They create the illusion that the building is alive.

The two major features of the building, both inside and out, are the windows in the People's Republic and Wondrous Place galleries. These are 9m (30ft)-high and 28m (92ft)-wide. One of them reflects the water. In the other you can see the Pier Head buildings reflected from outside. So it's a sense of transparency, of the building being an actual part of the city.

Who will be your core audience?

Our core audience will be local and regional visitors. But we know from the previous Museum of Liverpool Life, and how Liverpool's visitor economy has changed over the last few years, that we can expect a really high proportion of tourists both national and international. We've got that unique role of being a place for visitors to the city wherever they come from and the local museum for Liverpool.

Our original target was 750,000 visitors in a full operational year. We're now expecting more than that. Our Merseyside Maritime Museum, which is also on the Albert Docks, received more than one million visitors last year, so we know there's a fantastic interest in visiting museums.

I hope visitors are going to be stunned by Liverpool's story, but also be responsive to the quality of a building that is a history museum. There's something very powerful in us saying that this museum is about local, ordinary people and is in a stunning building in a fantastic location.

How is the museum funded?

The MoL is part of National Museums Liverpool (NML), which is a museums and galleries group comprising eight venues. As a part of NML, running costs for the Museum of Liverpool will be met by Grant-in-aid (GiA) funding from the Department of Culture, Media and Sport.

To meet the museum's building costs of £72m (€82m, US$117.4m), we've received generous support from several major funders, along with grants from trusts and foundations. These include the Garfield Weston Foundation and the Clore Duffield Foundation, corporate support and individual donations.

We received £45m (€50.8m, $73.5m) from the Northwest Regional Development Agency and The European Regional Development Fund, £11.4m (€12.8m, $18.6m) from the Heritage Lottery Fund and £0.5m (€0.56m, $0.8m) from the Department of Culture Media and Sport.

The European Regional Development Fund (ERDF) is making a real difference to people and businesses in the Northwest. With €755m (£669m, $1bn) to invest between 2007 and 2013, ERDF is enhancing the competitiveness of the region's economy by supporting growth in enterprise and employment. ●

ANDREW LEE

With his first expo taking place in June, IAAPA Asia Pacific's executive director Andrew Lee describes his plans for both the show and the association

Lee's aims for the association include a uniform standard of safety across all attractions and ensuring the industry remains fun but maintains its integrity

What benefits do IAAPA Asia Pacific members get?

When you join IAAPA, you become a member of the global association, regardless of which region you're from.

Attractions in Asia Pacific usually join IAAPA because of the safety and standards programs we run, the education services and the opportunities to network with a worldwide community.

How will you increase membership numbers?

By going to the grass roots and working with the respective national associations. My intention is to promote dual memberships where both IAAPA and the local association can offer complementary services. Whenever I visit a country, I make a point of touching base with the local association and meeting its members.

What enquiries do you get from members?

I get all kinds of enquiries from members and non-members every day. They range from CEOs who want to make an investment decision, to a student who's working on a project about the attractions industry.

Common questions are usually about joining IAAPA, attending the expos and asking where to find resources.

What are the main issues in the industry in Asia?

Maintaining the same standards and safety regulations across the various countries.

What are the current trends in the industry?

Mixed use developments are sprouting up around Asia. Singapore is the first to coin the term Integrated Resorts [*see Emmanuel Mongon's feature on p40*] where theme parks, museums, aquariums, casinos, hotels, restaurants, retail shops and other facilities are placed together under one roof.

Japan, Korea and Taiwan are hot on Singapore's heels and are also building integrated resorts now.

What are the opportunities for growth?

The growth markets are China and India, with South East Asia a close second.

Waterparks generate the best yield. And children definitely dictate family decisions.

What are the plans for Asian Attractions Expo 2011?

The expo takes place June 22-24 at Resorts World Sentosa, Singapore. We're expecting 4,500 participants (buyers and exhibitor personnel) from more than 40 countries. Approximately 200 exhibiting companies from Asia, North America, Europe and around the world will cover 4,000sq m (43,000sq ft) net of floor space.

There will be a one-day IAAPA Safety Institute providing guidance on safety standards and regulations for the attractions industry. Presenters include safety experts from leading attractions.

Leadership breakfasts and education sessions led by industry professionals will focus on highly relevant and crucial topics. There will also be networking events, time on the expo floor and park tours at some of Singapore's world-renowned attractions,

 ©cybertrek 2011

ASIAN Attractions Expo

(Above) Visitors to this year's expo can visit neighbouring Universal Studios Singapore; (below) in Asia, food plays an important role in networking

which will provide opportunities to create business relationships, talk to suppliers, share strategies and promote growth.

Will the Expo differ to last year's?

The venue itself is unique. It's the first time it's been held at an integrated resort where a theme park – Universal Studios Singapore – is just a few minutes walk from the exhibition. The variety and number of exhibitors has also increased from last year.

How many people attend the expo?

Last year, we had a record 4,750 people, including 3,250 buyers from 40 countries. This figure represents a 34 per cent increase in the total number of buying companies and an 11 per cent increase in the number of buyers compared to Asian Attractions Expo 2009. This year, we're expecting more than 4,500 people.

How long have you been with IAAPA?

I've been executive director of IAAPA Asia Pacific since September 2010. My background is in hospitality and trade show management and I studied hotel and tourism. The attractions industry is part of a wider travel and tourism industry which I am well tuned into. The position at IAAPA appealed to me because of the scope and challenge involved in setting up a new office for the association in a region which hasn't been fully realised yet.

What are your responsibilities?

My key responsibilities are expanding and enhancing IAAPA's programs and services in the Asia Pacific region.

I also oversee government relations, communications, membership development, education and the Asian Attractions Expo, which is the biggest conference and trade show for the industry in Asia.

What are the main challenges?

The penetration of the IAAPA brand in Asia Pacific is around 25 per cent. Therefore, three out of four industry practitioners in this region haven't heard of IAAPA. I see

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(Above) Resorts World Sentosa where this year's expo will be held; (below) Lee with Hong Kong members at a networking luncheon held in Hong Kong

this situation as a great opportunity to promote the association and its benefits to a very wide audience base.

The region comprises of many countries with distinct cultures, which is a challenge. Language is also a major hurdle. To overcome this, establishing local partnerships to penetrate each market is crucial.

What do you enjoy most?

Learning about the nuts and bolts of the attractions industry and interacting with members from the various constituencies of the membership.

I'm thrilled to be working for an industry that brings fun and joy to everyone.

Please describe the roadshows

Roadshows usually comprise of a networking event and visits to the respective attractions of the city. In Asia, food plays an important role in establishing a close bond, so networking is done over a meal.

IAAPA members are proud to showcase their facilities or services, so a roadshow will usually include park or factory visits.

Our most recent roadshow included visits to Singapore, Hong Kong, Guangzhou and Tokyo. We invite our IAAPA members from these cities and encourage the local associations to invite their members. Each city visit lasts a day or two.

How much travelling do you do?

I've been travelling a fair bit since joining the association. As well as the roadshows, I visit the host city of Asian Attractions Expo to oversee preparations for the show, attend events such as the IAAPA Attractions Expo, Euro Attractions Show and the recent IAAPA Leadership Conference, and go to industry events including the China Attractions Expo.

I've been very fortunate to visit so many interesting attractions as part of my work. Most visits are at the invitation of IAAPA members and I endeavour to fit them into my schedule during my business trips.

What are your development plans?

My goal is to recruit volunteers to build up several committees to serve the various constituencies of the industry. I also want to create sub-regions to target specific needs of the members.

What's the future for the industry?

The future for the industry in Asia Pacific is boundless. Because the industry is in its infancy compared to Europe and the US, new ideas can be adapted easily.

The middle class segment in this region is growing rapidly, giving rise to greater propensity to travel and visit attractions.

What message do you have for your members?

This industry brings joy and laughter to people. Maintain your integrity and work to the highest standard possible. ●

ASIAN ATTRACTIONS EXPO 2011 SEMINAR PROGRAMME

Tuesday June 21
- IAAPA Safety Institute

Wednesday June 22
- Effective and Impactful Employee Engagement
- How to Measure and Reduce Your Attractions' Carbon Footprint: From Fact to Implementation
- Family and Indoor Entertainment Centers: Growing the Business and Profitability

Thursday June 23
- Leadership Breakfast
- Growing the Attractions Industry in Asia: A Panel Discussion
- Making It Count: Effective Marketing Strategies Everyone Can Use

Friday June 24
- Leadership Breakfast
- Integrated Resorts: From Theory to Making it Happen
- Risk Profiling: How to conduct a Risk Assessment No Matter Your Budget

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FLIGHT OF FANTASY

Taking inspiration from the theatre and cinema, Sarner has created a dramatic, interactive show which immerses visitors in a Doctor Who adventure. Kathleen Whyman finds out how the sci-fi tv series was brought to life

Watching a crack in time open up before your eyes and being invited to step through into another dimension isn't your average Saturday afternoon. But offering something decidedly not-average is exactly what Sarner, the creators of the new Doctor Who Experience, set out to do.

For those unfamiliar with *Doctor Who*, it's a cult British tv programme following the adventures of an extra-terrestrial Time Lord as he travels through time in a police phone box, known as the Tardis. He battles aliens (his greatest enemies are robot-like Cybermen and the menacing Daleks) and brings the earth back from the brink of a crisis on a weekly basis. The programme is the UK's longest running sci-fi series and has had children gleefully cowering behind sofas since 1963. The most recent series centered around a plot involving a crack in time, hence the dramatic opening sequence to the Doctor Who Experience. After this unexpected start to the show, visitors enter a spaceship, see a full-scale Tardis magically appear, then walk through the doors into the Tardis itself and learn to fly it. An emergency landing on a Dalek's spaceship results in a CGI battle scene followed by a 3D finale. After the 25-minute show, visitors can explore the free-flow exhibition dedicated to all 11 series of the programme at their leisure.

THE CREATORS

Having been a fan of *Doctor Who* since he was a child, creating an experience about the show was a dream come true for Sarner's creative director Michael Bennett. Although, when he and managing director Ross Magri were first approached by the BBC (British Broadcasting Corporation, which makes and airs the programme), they had no idea what the project would be. "The BBC approached us two years ago to say they liked our work and planned to use us in some way, so would be in touch when something came up," recalls Magri. "Six months later they asked if we were interested in an undisclosed project. We went to a meeting at the BBC office in London, not knowing what it was they wanted us to do. When they told us it was the Doctor Who Experience we said 'of course!'"

Determined to win the contract, Bennett and Magri spoke to the hardcore *Doctor Who* fans (known as Whovians) to find out what they'd like to see. Armed with this knowledge, their aim was to recreate the emotions of excitement, anticipation and slight terror that viewers of the programme experience. The result was the free-flow exhibition plus an immersive, timed, dark walk show that uses film-making techniques to plunge visitors into the world of *Doctor Who*, so they are actively involved in the adventure rather than just observing it.

The BBC acknowledged that this design was much riskier than a traditional exhibition, but the Whovians voted for it and Sarner won the tender.

PHOTOS: LIAM DANIELS

The Tardis' console had to be redesigned when it was updated following a change in actors playing The Doctor

 ©cybertrek 2011

Footage of The Doctor (currently played by actor Matt Smith) was filmed specifically for the experience

> "We're still projecting onto the screen as visitors walk through the crack into a space ship. It's smoky, it's dark – they're actually going into the story"

Next came the tricky part – creating the experience and exhibition with precision, so it would pass the close scrutiny of the Whovians. All this in only three months – half the time Sarner would normally devote to an attraction of this scale. "It was a very tight schedule and very full-on," says Magri. "The exhibition is at Olympia in London, so we had to work around other events that were taking place, one of which was a chess championship which required a quiet setting, so we couldn't do any drilling.

The venue itself also presented challenges. The main exit is through a 6sq ft (0.5 sq m) service lift, so everything had to be brought in in small pieces; nothing could be bigger than 2m x 5m (6.5ft X 16ft) and installed here."

"There was another major challenge," adds Bennett. "One of the key pieces in the show experience is a replica of the interior of the Tardis. As if the complexity of recreating this precisely wasn't difficult enough, the Tardis changed with the exit of David Tennant and the arrival of Matt Smith [the actors playing the 10th and 11th Doctor – he can regenerate, hence why he's been around for so long], so we had to completely change our original design."

THE DESIGN

Covering 4,000sq m (43,000sq ft), the experience is donut-shaped around a closed-off atrium in the middle, so traffic goes around the space.

Timed tickets are sold online and visitors are batched into groups of 55 before going into a preview theatre. Standing in a black space with a 3.5m (11.5ft) projection screen, visitors watch a high impact film presentation of the past series in 3.5 minutes. "Part of the design philosophy, and why we won it, is that I wanted to get the visitors to walk into the screen and into the adventure," explains Bennett. "The crack in time appears at the end of the film sequence with CGI animation and starts to open up. We're still projecting onto the screen as visitors walk through the crack into a space ship, into a set. It's smoky, it's dark – they're actually going into the story."

The first zone is in the basement of a spaceship. "The big moment at this point is the appearance of the full-size Tardis, which is what a lot of the fans want to see," says Magri. "We used a transition gauze effect, which is a great theatre reveal effect and is dramatic and powerful."

The Tardis doors open and The Doctor tells everyone to pile in. For fans of the programme, entering the Tardis is one of the big magic moments. Light and sound effects create an exciting atmosphere, then the motion platform gives the illusion of being on a bumpy flight. "It's very disorientating because you can't quite work out if the centre's moving or the platform is, so it's an unusual effect," says Bennett. "It's exciting and immersive as we take off."

The next stop is inside a Dalek spaceship. "All these sets are in the round, so you're surrounded," says Magri. "It's not like being in the theatre when you have the audience and the stage. You're immersed in the set. The Tardis and the Dalek spaceship are based on sound effects. We haven't got a music score, other than at the beginning or the end, as we wanted to create the feeling that you're there. It's all based on iconic sound effects and voices."

Within the Dalek spaceship, a large, mechanical eye comes down, scans visitors with a radar and displays them on screen, first as they are in the flesh, then as skeletons. To create this, Sarner used a slit-scan gobo effect. During the scanning sequence, one Dalek comes up behind the visitors and another two at the front so guests are penned in. At 2m (6.5ft)-high and 1m-wide, they're quite intimidating.

Next, the view ports at the front of the ship fade away, again using a transition gauze, to reveal a large space scene. Set against a 24m x 4m (79ft x 13ft) painted backdrop, a 7m (23ft) CGI animated sequence of a battle scene is projected onto the centre. The last part of the show is a dramatic 3D film showing the iconic *Doctor Who* monsters coming at the audience. "There's one moment when the huge eye of the Dalek comes out into the audience," says Magri. "It's not dissimilar to a 3D film you'd see at a theme park, so we're really thrusting things forward in the world of show experiences."

Props used in the series include a Henry Moore-type sculpture featuring an animated human face

THE TECHNOLOGY

With such a ground-breaking exhibition, it would be expected that Sarner had to design some ground-breaking technology, but this isn't the case. "We haven't invented anything new for the project," says Magri. "What's unique is the integration of all the technologies to create this immersive experience."

Each element of the visitor attraction is synchronised using a multiprocessor computer. "We've used very sophisticated control equipment so the show's fully automated," Bennett explains. "It just needs a person to press the start button and it goes. It's very important to use reliable, robust technology because the last thing we want is for the show to go down on a busy Saturday afternoon."

FEEDBACK

The Doctor Who Experience opened on February 20th and received 25,000 visitors in its first month. The original running time of the show element was estimated at 30 minutes but has been reduced to 23 minutes, as visitors were travelling along the two walkways quicker than anticipated in their eagerness to get to the next stage.

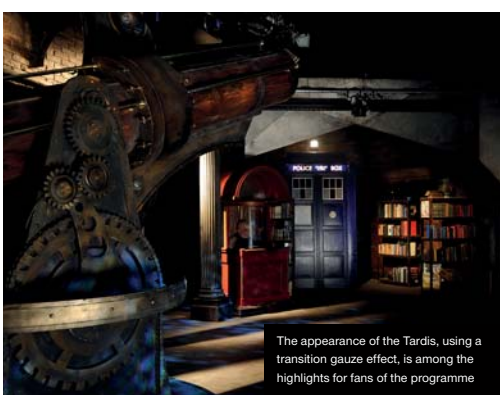
"Designers tend to go over the top with their visuals, but we went over the top with the sets. They're better than the illustrations, which is quite unusual"

"Feedback has been very positive. Even the real fans say it's accurate," says Magri. "The BBC is delighted with it too," adds Bennett. "It's not unusual for the initial presentation of a project to be so impressive that it's not possible to achieve as high a level in reality, but the BBC has said that the actual experience is better than the presentation. Designers tend to go over the top with their visuals, but we went over the top with the sets and they're better than the illustrations, which is quite unusual.

"So many projects get changed along the way but our concept has come off the page and come to life," Bennett continues. "And of course it's Doctor Who – such a great subject matter. Going into the Tardis and being involved in an adventure is something many people dream of. It's a unique opportunity."

ABOUT DOCTOR WHO EXPERIENCE

- The Doctor Who Experience will be at London Olympia Two for nine months. It's the longest running show to be held at Olympia and will stay until November when it will move to a permanent home in Cardiff, Wales and open in 2012.
- Tickets are priced from £15.50 (€18, US$25) for adults, £12.50 (€14, $20) for children and £46 (€52, $73) for a family ticket.
- The show element of the attraction is 23 minutes, but the whole exhibition is designed with a total visit time of 90 minutes.
- The suppliers used are Artem, CTS Scenics, CUK Audio, Peavey, Panasonic, AV Stumpfl, Harkness Hall and Havells Sylvania.



The appearance of the Tardis, using a transition gauze effect, is among the highlights for fans of the programme

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The finale is a 3D show in which The Doctor's enemies seemingly come out of a crack in a wall

FIRST PERSON EXPERIENCE

Kathleen Whyman

Like so many Brits (and fans in Australia, Canada, the US, Germany and Portugal where the show is also popular), I watched the show through splayed fingers as a child. While no Whovian, I'm still enjoying the programme as an adult and looked forward to the Doctor Who Experience.

The attraction is suitable for children over five. Bennett and Sarner are aware that some parts of the experience may be a little alarming for younger visitors, so have included exits along the route if people want to step out of the show.

The opening film gives a great précis of the last series and really gees you up. Then the crack opening in the screen is a dramatic and powerful start to the show.

When first entering the Tardis, I must confess to exclaiming "wow" out loud when I saw the central console and time rota and felt rather envious of the children with remote controls who got to "fly" the time machine. The attention to detail throughout the attraction is fantastic. The metal interior of the dalek's spaceship is cold to the touch and the dalek's themselves are enormous and sinister. At this point I wished I'd brought my four-year-olddaughter so I had a hand to hold. The battle scene is extremely impressive. Rather than observing a CGI animation on a painted backdrop, it was as realistic as watching an actual fight between spaceships through a window (not that I've done this very often).

For me, the walkway through the forest of Weeping Angels was too rushed. I understood the other visitors' haste to move onto the next stage of the story, but I would have preferred to linger and peer into the trees for longer than I was able to.

The 3D finale was impressive and the plot and script throughout the experience were very in keeping with the programme and of the same calibre. It was written by Stephen Moffatt, the creator of the tv programme, and includes footage of the current Doctor, Matt Smith, who was filmed specifically for the experience. This attention to detail further enhances the show.

The free-flow exhibition was well laid out and contained enough artefacts, props and interactives to keep me entertained for an hour. Finding the toilets was a bit of a mission in itself – at one stage I wondered if they were in another galaxy – but perhaps too much signage would have spoiled the magic of the experience.

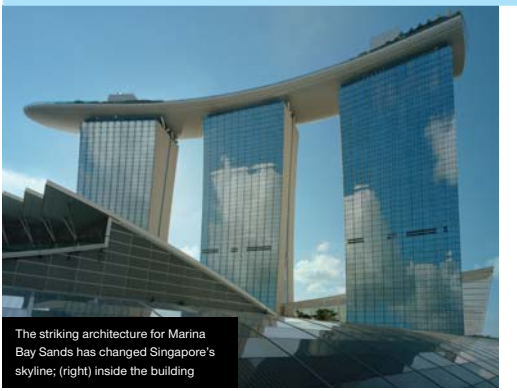
The exit is cannily located through the shop, which is full of so much Doctor Who merchandise that I congratulated myself on leaving my children at home. ●

THE EXHIBITION

Artefacts include:

- The actual studio Tardis exterior and a waxwork figure of Matt Smith as The Doctor
- A Tardis exterior used in the series in the 1980s
- The costumes and information about all 11 doctors and many of their companions
- Two authentic Tardis sets used by previous Doctors
- Models of many of the aliens The Doctor has encountered
- The evolution of the Cybermen and the daleks including Davros (head of the Daleks), showing the progression through time from 1963 to now
- Walk Like a Monster, an interactive exhibit where children learn to mimic a Cyberman's walk
- An art department set showing models, visuals and scenics
- The Sounds of Doctor Who, an interactive sound effects studio giving visitors the opportunity to hear their own voice transformed into a Dalek or Cyberman
- A changeable area to update the attraction with scenes from the most current series. It's currently showing props and outfits from the Christmas 2010 special

INTEGRATED RESORTS



The striking architecture for Marina Bay Sands has changed Singapore's skyline; (right) inside the building

Two integrated resorts recently opened in Singapore with the aim of transforming the country's image from that of a business centre or retail destination to a fun place to stay. Imaginvest's Emmanuel Mongon analyses the resorts' offers

In 2000, I was part of a group asked by the authorities of Singapore to analyse the leisure island of Sentosa and propose strategies for its future. The group comprised government officials, international figures in the leisure industry and major entrepreneurs from Singapore. I was only involved in this initial stage and the atmosphere was remarkably open-minded.

We were asked to express our professional experience and imagination freely. This conclave allowed a true audit of the failures of several private attractions, and paved the way for a new vision of the island. The result was a complete re-engineering strategy for Sentosa Island.

No subject was taboo, except one – a casino for Sentosa. The minister of industry and commerce gently pointed out that this wasn't possible by the laws of Singapore. Also, the republic had developed an image that completely contrasted the reputation that a casino can have. But, Sentosa is a leisure island separated from mainland Singapore by a bridge with restricted access. So could it be considered differently to the city state and treated like a ship with slightly different rules?

Ten years later, Singapore has opened two huge resort complexes of international standards, each built around a casino. Resorts World Sentosa opened in January 2010 and Marina Bay Sands opened in June 2010. Both are increasing their offer by adding more attractions regularly.

My work as masterplanner has often led me to think outside the box, while also capturing the essence and cultural values of the underlying assets. But I must admit that it's rare to see a whole country change radically and implement a new direction. For those who knew Singapore before, it's remarkable in many aspects. The re-engineering of Sentosa is actually a major (but not single) project to develop a new pillar in the economy and culture of Singapore.

CREATIVITY

Singapore has reached the level of a developed economy, with leading industries such as finance, shipping or electronics. For many years, the tourism economy was mostly built around shopping and hotels. High quality leisure facilities were then developed, including a zoo, bird park and night safari. But it's only recently that the government of Singapore decided to foster a specific side of culture, which wasn't a priority in their original planning – creativity. To our industry, for which creativity is a source to attract visitors, it's fascinating to see a whole population being encouraged to explore their imagination.

In this instance, the two new resorts of Marina Bay Sands and Resorts World Sentosa are milestones in Singapore's entertainment history. I believe they represent much more than a new set of individual attractions to increase tourism to the city state. They want to epitomise a new way to enjoy Singapore. People who consider a visit to Singapore a little boring compared to the charm of some other Asian destinations, need to be reminded that Singapore is fun and not just a business district or a retail destination.

It will be interesting to see what the real impact of this new strategy for Singapore will be over the next few years. The change has already had an effect on our industry with many vendors and professionals being involved with projects in Singapore over the past few years, but will it attract the expected number of foreign visitors?

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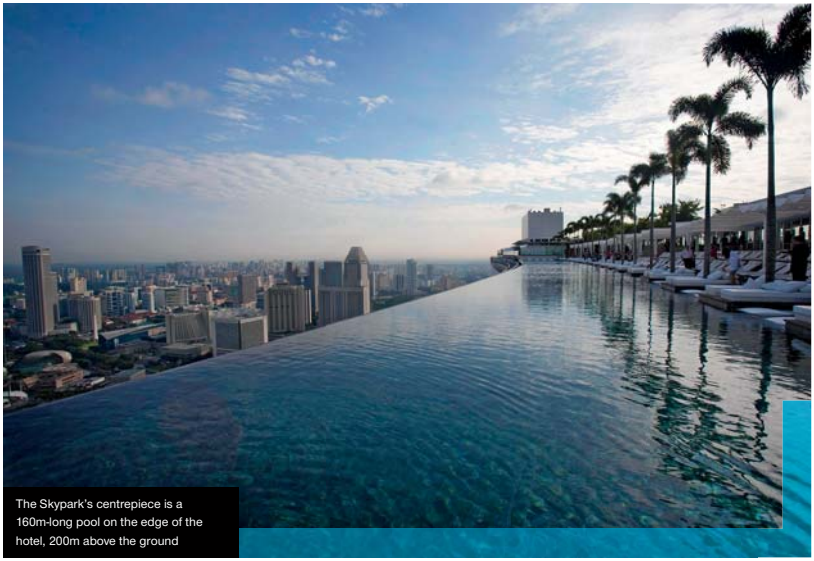

The Skypark's centrepiece is a 160m-long pool on the edge of the hotel, 200m above the ground

The real satisfaction for me is seeing what started out as an idea come to fruition. In our industry, we know that the pitfalls are numerous between the initial idea and opening to the public. I believe visitor success comes from the right commitment for a strong vision and attention to the smallest details. Having not been involved in the implementation phases of these casinos projects in Singapore, I'm extremely excited about the resorts.

MARINA BAY SANDS

The new Marina Bay Sands (MBS) resort has changed Singapore's skyline. An ark balances on the roof of three hotel towers. Longer than the Eiffel tower, this Skypark is designed like a ship, with a restaurant by the Singaporean star-chef Justin Quek, a private lounge and a roof garden with a Banyan Tree spa. One area is accessible to the general public as a viewpoint, directly competing with the nearby giant wheel.

The centrepiece of the Skypark is a 160m (525ft)-long swimming pool, which gives the illusion of teetering on the edge of the building 200m (650ft) above the ground. If you visit Singapore you must see it – it will render even the most blasé industry expert open-mouthed. Whether swimming or relaxing on a deck chair, you're higher than the skyline buildings of the central business district of Singapore.

> "It's rare to see a whole country change radically and implement a new direction. The re-engineering of Sentosa is a project to develop a new pillar in Singapore's culture"

Its creator, Moshe Safdie, is known for designing cultural and civic institutions and landmarks such as the United States Institute of Peace in Washington, the Quebec Museum of Civilisation, the National Gallery of Canada, the Holocaust Museum in Jerusalem, the Exploration Place Science Center in Kansas and the National Museum of the Sikh People in Punjab. Safdie created an asymmetrical design so it would stand out and be seen by people in the city centre of Singapore and the other side of Marina Bay.

In addition to the 2,500-room hotel towers and Skypark, the resort comprises several buildings along the edge of the water. These include one of the largest exhibition and convention centre in Asia, a shopping mall, two theatres, a museum designed to look like a lotus flower and a promenade along the bay with night clubs and open-air evening shows.

Representing only three per cent of the total area of the integrated resort, the casino is the driving force of this development. The developer is Sands Corporation of Las Vegas and its chair, Sheldon Adelson, had the vision to build and operate giant MICE complexes around the casinos and create a leading group. At the opening of Marina Bay Sands, Adelson explained that his primary target with this integrated resort in Singapore was the South Eastern Asian market, which is only a one-hour flight away.

In this instance, western guests arriving from Europe or the US may be partially disappointed by the resort if they're expecting the Asian glamour of their dreams or a themed experience like the Venetian. Despite a corporate communication presenting the resort as a luxury facility, it's clearly positioned as a mass market attraction and accommodation.

The management of MBS expect to receive between eight to 12 million guests in its first year and 18 million annually when fully opened. There are currently 25,000

customers per day in average, and this number should increase to 70,000 per day when all the facilities are open. MBS wants to help increase Singapore tourism visitors from the current nine million to 17 million.

When asked about his view on the rest of Asia, Adelson said that he's looking for at least five other markets in this region of the world to create similar giant integrated resorts. He's interested in Korea and is currently waiting for approval to develop sites in Vietnam, China and Mumbai.

RESORT WORLD SENTOSA

Resort World Sentosa's (RWS) main leisure component is a Universal Studios theme park. The park is currently attracting bus loads of families from nearby Malaysia.

Universal Studios Singapore is Resort World Sentosa's main leisure component and is built on a covered car park

COMPARISON OF THE TWO INTEGRATED RESORTS

Marina Bay Sands	Resort World Sentosa
Rooms: 2,500 in 3 towers covering 55 floors	Rooms: 1,800 in 6 hotels
Casino: 3 per cent of total area 15,000sq m (161,500sq ft), 600 table games 1,500 slot machines	Casino: 5 per cent of total area
Landmark: Skypark 1.2 hectares garden and pool at 200m (650ft) above ground	Landmark: Universal Studios Singapore offering 24 rides (predicted visitors – 4.5 million per annum)
Retail space: 74,000sq m (800,000sq ft)	Retail space: 3,000sq m (32,000sq ft)
Capacity: 45,000 people in total. 250 meetings rooms, 2,000 booths Ballroom for 6,000 people seated for dinner and 11,000 people when an amphitheater	Capacity: Ballroom for 7,000 people seated and 26 additional rooms
Highlights: 50 restaurants including venues by international chefs Guy Savoy, Daniel Boulud, Santi Santamaria, Wolfgang Puck and Tetsuya Wakuda	Highlights: Festive Walk 500m (1,640ft) of waterfront restaurants, concept retail, stores, cafés, clubs Open 24 hours a day
Additional entertainment: Two theatres with 4,000 seats plus an outdoor amphitheatre for 10,000 people	Additional entertainment: Live entertainment in outdoor amphitheatre and indoor venues
Spa: Banyan Tree Spa	Spa: Espa spa
Yet to open: museum	Yet to open: the largest oceanarium in the world housing 700,000 marine creatures
Space: 15.5 hectares of land	Space: 49 hectares of land
Staff: 7,000 currently, which will increase when fully opened	Staff: 10,000
Investment: €4.3bn (£3.7bn, US$6bn, SGD$7.7bn)	Investment: €3.9bn (£4bn, US$5.5bn, SGD$7bn)
Expected visitors: 8 to 12 million this year and 18 million when fully opened	Expected visitors: 12 to 13 million visitors in the first year
Website: www.marinabaysands.com	Website: www.rwsentosa.com

However, professional visitors from the leisure industry may be surprised by the small footprint and the reduced number of attractions of this theme park, compared with other Universal parks.

RWS earns the title of integrated resort because of its secluded location on the island of Sentosa. Because of the limited available space on the island, the theme park is built entirely on a covered car park. In comparison, Marina Bay Sands is more urban and open to the city.

INTEGRATED RESORTS

The developers of the two new casinos and the authorities of Singapore have been very careful not to use the word casino. Instead, Resort World Sentosa and Marina Bay Sands are called integrated resorts. Singaporeans love new words and abbreviations and they now just say IR.

It's been stressed that the area devoted to the actual gaming is just a small percentage of the total area, and the casinos are clearly targeting foreign visitors – Singaporean citizens have to pay SGD$100 (£49, €55, US$80) to enter the gaming area. Both integrated resorts highlight the variety of leisure experiences and market themselves as 'all in one place' locations with enough activities to keep guests entertained both day and night.

The arrival of the two integrated resorts represents a significant additional mass of entertainment in Singapore and it's hoped that tourists will now stay longer in the city.

Only time will tell if the major addition of all this entertainment will expand the average length of stay or if the visitors will tend to use a reduced part of the new offer. It's had a positive start, with the Singapore Tourism Board advising that 11.6 million tourists visited the town in 2010, breaking the previous record of 10.3 million set in 2007. Who knows, maybe IR will become the industry's new buzzword! ●

Emmanuel Mongon, founder and president of masterplanning company Imaginvest

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PEPPA PIG WORLD

Fans of the hit children's tv show *Peppa Pig* will be in their element in a new attraction dedicated to the cartoon. Richard Mancey, managing director of Paultons Park, which operates Peppa Pig World, describes the offer

What is Peppa Pig World?

Opening on April 9th, this magical world is a must for any fan of the popular TV show. It offers rides, buildings and animations from the cartoon programme, a huge themed indoor play area and two cafés.

Covering three acres, it sits within the 65-acre family theme park Paultons Park in Hampshire, UK.

Please describe the park's content.

There are seven Peppa Pig-themed rides: Miss Rabbits Helicopter Flight; Peppa's Big Balloon Ride; Daddy Pig's Car Ride; Grandpa Pig's Little Train Ride; George's Dinosaur Adventure; Grandpa Pig's Boat Trip; and Windy Castle. There's also a water splash park called Muddy Puddles [jumping in them is Peppa Pig's favourite activity], an outdoor play area – Mr Potato's Playground – and Paulton's first indoor play area – George's Space Ship Play Zone – housed on a 900sq m (9,700sq ft) grass-roofed building. All the rides are heavily themed to closely mirror what viewers see in the series. Five of the rides were manufactured by Metallbau Emmeln and two were produced by Zierer.

Where did the inspiration come from for Peppa Pig World?

Paultons was one of the first parks to stage a Peppa Pig Meet and Greet, which we held four years ago. This proved popular with our guests and we've seen this popularity gradually increase to where it is today. We were also very impressed with the whole ethos of the tv series.

We established a relationship with Entertainment One (the licence holders of Peppa Pig) over a number of years while running Peppa Pig character weekends and agreed the exclusive licence to the Peppa Pig theme park concept. The park is solely funded by Paultons.

How did you choose the content?

We wanted rides and attractions that would complement those we already had at Paultons. We also wanted to include elements that could easily be themed so that they were integral to the whole of Peppa Pig World.

There were many other factors that were part of the decision making process as to what rides and attractions were to be included, such as throughputs, longevity and engineering factors.

What is the design?

It's a totally immersive experience for families with children aged one to six. As well as the rides and attractions, there are numerous themed buildings and animated attractions which will add to the magic of Peppa Pig World. Much time and effort has been spent on the landscaping and planting – a Paultons speciality – which will add to the experience for children and adults alike. The initial master plan was designed by RMA Themed Attractions working closely with our directors and operations management.

ABOUT THE COSTUMES

Peppa Pig and her brother George both make appearances at the park in costumes created by Rainbow Productions. Simon Foulkes, sales and marketing director, describes the outfits that the performers wear.

Cool vests with gel packs make the Pig costumes more comfortable to wear

"We've created two sets of manufactured costume versions of the licensed properties, Peppa Pig and George. The show is so popular that the biggest challenge was to capture the essence of the characters and translate how they're perceived in their two dimensional world into larger-than-life three dimensional costume characters.

The skin (costume) performers at Paultons received training from our qualified team of staff. They're taught how best to portray the characters accurately in order to engage with the audience. We also give training in the crucial health and safety aspects of performing as a costume character.

The costumes cover the performer's bodies and heads so we take their welfare very seriously. We manufacture light-weight costumes, fit headfans and supply cool vests with gel packs. These sit next to the performer's body when they're wearing the costume, making it cooler and more comfortable to wear. We developed this technology when creating the official mascots for the Athens Olympics in 2004 and it's subsequently been used at theme parks and sporting events around the world."

 ©cybertrek 2011

(Above) visitors can meet Peppa Pig and her brother George before taking a ride on Grandpa Pig's Boat Trip (right)

Will adults enjoy themselves too?
This is fundamentally important to us. All the rides, play areas and attractions have been designed so adults can accompany their children on them.

How does Peppa Pig World complement the rest of the park?
Paultons is very focused on providing families with children below the age of 14 with a full day's entertainment. We have rides and attractions already at the Park suitable for this age group, but Peppa Pig World provides the park with its own area dedicated for children below the age of six. With all the other rides and attractions, plus wonderful gardens, birds and animals, there are many other things for a family to enjoy. For older siblings and parents, there are thrill rides such as the Cobra, Edge and Sky Swinger.

Where will visitors come from?
We're hoping that with the introduction of Peppa Pig World, guests will travel from further afield than our traditional catchment area, as it's the only one of its kind that will the developed in the UK. We know that Peppa Pig's popularity in overseas markets is steadily growing, so we hope to see attendance from these audiences increasing over time.

How much did the park cost?
Peppa Pig World cost £6m (€6.8m, $9.6m) in total. It's the largest single project undertaken by the park in its 27-year history. A ticket to Paultons Park automatically includes entry to Peppa Pig World.

What is the F&B and retail offer?
Within Peppa Pig World there's a café in the indoor play area called Daddy Pig's Big Tummy Cafe plus Miss Rabbit's Ice Cream Parlour. There are also a number of photographic outlets – studio, green screen and ride photo – as well as a 2,500sq ft (232 sq m) dedicated Peppa Pig toy shop.

How did you work with the creators?
We've spent an incredible amount of time and resource in ensuring that Peppa Pig World reflects the series and characters as closely as is possible. To assist us in this, we've worked with Entertainment One and the creators of Peppa Pig World – Ashley, Baker, Davis – throughout this whole project from its concept, the initial design and then the final build.

What are your future plans?
We're always adding attractions and updating and improving the park's infrastructure. This process will continue. ●

The Indian attractions industry is set to grow, but how can operators ensure success in a previously untapped country? Jennifer Harbottle gets advice from some industry experts

BOLLYWOOD BONANZA OR SLUMDOG MILLIONAIRE?

On paper, India has the potential to be an attractions industry superpower; its population is the second largest on the planet (accounting for 15 per cent of the world's population), it has one of the largest and most prosperous middle classes in the world and is ideally placed geographically between the affluent markets of Europe and South East and Northern Asia.

According to numbers, 11 per cent of household income in India is spent on recreational and cultural services. This proportion compares reasonably well to other mature markets such as the US (six per cent), UK (12 per cent) and Japan (10 per cent). A report published in May 2010 by global management consulting firm McKinsey & Company stated that urban per capita GDP in India will grow six per cent a year between 2005 and 2025 and the number of households with discretionary spending power could increase sevenfold to 89 million by 2025.

So why aren't there more major destination attractions in the Indian sub continent? Why does the attractions industry have such a low profile among consumers in India? And why are the major players in the international attractions industry yet to stake their claim to this market?

The Indian Association of Amusement Parks & Industries (IAAPI) reports that there are currently 140 amusement parks in India, mainly concentrated in the southern part of the country. As there are more than 1.15 billion people in India, this seems a gross under-representation.

We ask four stakeholders what they think is needed to help the country take its place on the world's attractions' stage.

HARMEET PENTAL, COMPANY DIRECTOR AND CONSUMER, DELHI, INDIA

Each year, my family and I typically visit a domestic leisure attraction only two or three times. One reason is the cost to get to them, which is really high when you have to pay for air fares and hotels. The main reason though is that attractions just aren't very good and aren't worth the effort, particularly in the north of India where we live. Most are aimed at the lower classes, which means they're cheap to get in, but are poorly maintained and have no infrastructure.

Low ticket prices bring people in, but if all you want are large volumes of visitors, it ends up compromising everything else and there isn't the management expertise here to cope with large crowds. These attractions don't appeal to the middle and upper classes, who'd be willing to pay more if there were quality F&B offers, shade to keep people cool, decent restrooms and if the rides were well maintained.

Also, there's no control over how many people are admitted into an attraction, so there are terrible crowds. In North India in particular, crowds don't have social respect; no one stands in line or follows rules and it just makes for an unpleasant experience all round.

In South India, crowds behave better, attractions are of a higher standard and the weather is more temperate, so the industry is better serviced.

My favourite attraction is Islands of Adventure in Orlando. As a family we love waterparks, so enjoy these in the States, in Singapore and Vietnam and also on Australia's Gold Coast. With hot weather eight to nine months of the year, India is the perfect place for a waterpark, so it'd be good to see more of them open up here. But to get me and my family along, I'd have to know who owns the park and who built it. Ideally it would be an international brand name as that would instil a feeling of trust regarding safety – there's a perception here that local companies cut corners to save money.

Existing waterparks in India have been popular with the local market but need to improve to attract an international audience

Also, service standards are non-existent in Indian attractions, whereas a foreign company would be able to manage its staff and manage the flow of people to make it a better experience.

The fact is, there's nothing in India in the way of attractions for the middle and upper classes, so our country loses money to overseas destinations, such as Thailand and Malaysia, which do attractions better.

Harmeet Pentel is regional director of student placement company IDP Education

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IAAPI is encouraging its members to develop and grow by forming joint ventures or partnerships with established players in the international market

NIRMALSINH RANA, PRESIDENT OF IAAPI

Although India doesn't get a huge number of foreign tourists, domestic tourism has grown 14 per cent on average during the last decade. Of this, amusement park industry currently generates only 18-20 million visits a year. International tourists come to India mainly for sightseeing and they rarely visit amusement parks. Even domestic tourists in India are mainly attracted to sightseeing places, such as temples and churches.

At present, it's mainly the real estate players that are setting up small- and medium-size amusement parks to make the area popular, so as to increase the land price after infrastructure developments. The organised sectors and large investors haven't come into the fray except in a few cases – this may be due to ignorance and lack of knowledge about this industry, which is still in its infancy in India. The amusement industry is both capital- and labour-intensive and, so far, with the exception of a few medium- to large-size parks in India, success stories aren't well known, as most existing companies are private. Land availability and land costs are prohibitive.

The other predicament for operators and investors is amusement tax in India, which is fairly high. To set up an amusement park, various permissions from different statutory authorities and government bodies are required, which can be complicated. We hope it will soon be a single window clearance for setting up a new amusement park. IAAPI is working with government bodies and statutory authorities to bring in improvement in all these fields.

It's obvious that large international players are hesitant about coming to India as land cost is high and per capita spend in this industry is only around $10 (£6.50, €7.65). However, over the last five to six years that per capita spend in this industry is growing and we believe the large players will make investments in India within a few years. Due to the advantage of economy of scale in India, the operating costs would be lower. Plus, the government authorities and municipalities here are showing an interest in providing land for this industry, as it's being perceived as a social need. We predict that some of the existing medium to large parks will work with large international players to upgrade their existing park to larger destination parks very soon.

IAAPI is continuously campaigning with government authorities and emphasising that this industry boosts tourism, generates large employment and helps in the development of social infrastructure.

Nirmalsinh Rana, IAAPI president

YOGESH DANGE, 2ND VICE PRESIDENT IAAPI

The Indian amusement industry has matured over the years and with the per capita income increasing several fold in the last decade, I think we can expect many more operators, including Disney and Universal, to invest in India.

The government has been encouraging tourism in a big way and is also recognising the ability of the amusement and theme park industry to generate improved tourism and employment opportunities.

With approximately 140 parks and attractions in India at present, and many FECs, we expect the next phase of expansion to come from the tier-two cities such as Pune and Jaipur because the cost of land in and around large cities has become very expensive. The government needs to create a land bank for large operators to invest in India, as the tourism infrastructure needs huge tracts of land for development.

It's estimated that by 2020, the average Indian will be 29-years-old. This entails the creation of a large workforce, so at present the amusement industry in India isn't facing any problem with regard to manpower, but the situation could change with the growth. It also creates opportunities in terms of subsequent spin offs for economic growth and prosperity. This, in turn, will aid the growth of the Indian amusement parks industry in the future.

However, there's a need for the amusement industry in India to build integrated entertainment destinations with facilities such as amusement attractions, hotels, convention centres, exhibition centres and malls. Indian amusement parks need to look for joint ventures or partnerships with established players in the international market to explore this enormous opportunity. I don't foresee any major barrier for overseas operators starting a venture in India.

The Indian economy is growing at between 8.5 per cent and nine per cent per annum. It's only a matter of time before established players recognise the opportunity to invest in our attraction's industry.

Yogesh Dange is 2nd vice president of IAAPI and director of GRS Fantasy Park

India's existing amusement industry offer is limited, which could prove to be a staffing issue for operators considering entering the market and wanting to recruit experienced people

STEVE PEET, MANAGING DIRECTOR, STEVE PEET CONSULTANTS

The Indian attractions industry is on the verge of its next stage of growth. There are a number of well established amusement parks, waterparks and FECs operating successfully across the country, but now's the time for the Indian industry to decide whether there's potential to increase the number, size and sophistication of its product.

Like any market, there are barriers to entry for potential operators. Land is expensive, the approval process is a nightmare (multitude of approvals required from multiple local, provincial and federal government departments), the market is relatively uneducated for immersive experiences and alternatives for time and spend are relatively affordable.

One of the major issues in India is the lack of public infrastructure to support development. Air travel is abundant, but the lack of decent arterial and connecting roads, reliable and high capacity rail networks or other systems to move large volumes of people from the transport hubs to the attraction are a major issue. Indian governments at all levels really need to decide whether this industry has the potential to provide economic benefit to the country and assist operators by establishing the "connective tissue" that will support the life of any attraction in the long term.

Aside from these barriers to entry, the industry is unlikely to attract institutional investment from structured capital markets. The entrepreneurial spirit is abundant in India, but with restricted access to international capital, the result is an industry made up of primarily owner-operators that participate more from a "love" of the product and as much a lifestyle business as one for strict ROI interests.

The income stratification in India also needs to be considered. Although India has a population of 1.1bn, only 20 to 30 per cent are going to be accessible to operators of top-end product and more than half live on less than US$2 (£1.20, €1.39) a day. But that's still 350 million people!

The next part of the problem is that secondary revenue streams don't seem to achieve the same contribution levels as their overseas counterparts. Indians are very price sensitive. Also, affluent Indians love their food and take great pride and joy from their own cooking – they may think twice about paying for food they can cook better themselves. Additionally, revenue from merchandising programs in parks reliant on local visitors is always lower than those with a high percentage of tourists. Combine this problem with the low F&B spend and a low ticket price and profitability starts to look difficult.

It's a well-known fact that for attractions of this scale to be profitable in the long term, they must generate upwards of 40 per cent of visitation from tourism markets. Given the average spend of the Indian population, this burden needs to be shouldered by international visitors. The trouble is, India isn't known for this industry, which makes conversion of international tourism numbers difficult.

Here's the chicken-and-egg problem. Disney and Universal create awareness and demand, but without the government addressing some of the key barriers relating to infrastructure, it's difficult to see them being interested in the near-term.

Indians are aspirational and proud of their culture. Therefore, attractions that celebrate India's rich cultural heritage and diversity should do well, as should a world-class waterpark. Due to the hot climate, the opportunity to operate all year round is plausible in most areas and local markets have responded well to existing waterpark businesses. If these are operated at best industry practise standards, India could attract the elusive international market in at least one sector. However, at the moment, the range of product simply isn't sophisticated or accessible enough to create a real option for Indian families that generates repeat visitation on a profitable scale.

The good news for an operator in India is that labour is plentiful and wage rates are contained and affordable for operators. However, access to industry expertise is extremely limited, as is an educated and motivated employee base that can help create memorable experiences for guests and uphold good operational discipline.

Still, major hotels operate successfully, so perhaps the key is to re-position the industry as tourism. Create the right product with a point of difference, make it accessible and relatively affordable and the visitors will come (assuming of course that marketing is on-target and operational standards are aligned with expectations).

Steve Peet Consultants specialises in amusement services in Australia & Asia ●

> "Disney and Universal create awareness and demand, but without the government addressing infrastructure, it's difficult to see them being interested"

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TECHNOLOGY TIME LINE

Industry stalwart Kevin Murphy reflects on the history of multimedia and AV technology in museums and pinpoints what's needed for the future

Reflecting back to 1977, when I joined the Natural History Museum (NHM) as an enthused and relatively young engineer, we had one major tool in the technology toolbox that we could use on so many exhibits – the Kodak carousel slide projector. High technology for its time, flexible, robust and a strong creative medium. Now the carousel itself belongs in a museum, as one of the last of the larger UK installations using slides switches to video projection, with the Imperial War Museum of the North moving the Big Picture Show over to digital projection. In those days, and right through to the millennium, the slide projector ruled for the big image and while the range of equipment was somewhat limited, clever designers came up with clever tricks.

In the 1970s and early 1980s we were pioneers, using simple technology in a way that was virtually unheard of in museums, with the NHM again leading the world in new display techniques, much to the pain of some curators and the wild enthusiasm of the press and visitors. Now we face a situation where without some form of 3D, 4D, 5D or interactive experience, clients and visitors alike feel short-changed, and the marketing departments have little to grasp as the next 'thing' in exhibition technology.

I readily admit that the wow factor is sometimes entirely acceptable, with something based on technology to make a deep impression, but the substance of any exhibition must not induce contempt by mediocre design.

(Below) The Kodak Carousel projector offered so many creative possibilities.

STORY FIRST

As a die-hard technologist, I scan for new hardware trends and techniques on a daily basis for both home and work use, and try to stay in touch with the latest ideas. But I get increasingly frustrated by new hardware, software or apps which are badly thought through and, yet again, mediocre.

A vast raft of new technologies doesn't automatically mean good applications, and unfortunately, to a degree, the same does go for museum displays. It sounds like a chant that I and many others have been making for the last 20 years or more, but the secret to great technology-based displays isn't just the hardware and the technology in use, although it has to work and do the job. It's the thought, layout and ergonomic design that goes into the overall design and the content – good stories, told well. In museums the 'told well' is the core of the exhibit design and the technology is there to allow the story to shine.

Not only the story, but simplicity, can bring results. In the case of science museums, where the stories can be harder to extract, the focus is obviously more often on the physical effects when demonstrating science in action. For example, on a recent trade mission study in Singapore with a very experienced team of professionals from the UK, we had an interesting visit to the world class Science Centre. It was fun to note the one exhibit that kept virtually everyone enthralled was a small case demonstrating the effect of electromagnetism energised by sound on iron fillings, with the aid of small magnets and iron filing 'trees' accompanied by Jimmy Somerville singing *Smalltown Boy*. You can't get much simpler than dancing iron filings, but I bet that's the one exhibit that sticks in everyone's minds.

That's what a large part of what we're doing is about – memories and inspiration. And simple, successful memories can lead to big things for our visitors in the future – lasting impressions and return visits.

 ©cybertrek 2011

(Above) The Imperial War Museum of the North recently switched to digital projection

BEHIND THE SCENES

Now I work behind the scenes in one of the busiest design groups in our business. We look at design from the content and story first, with our interpreters often guiding the design principles with words before the layout and design is even touched.

To use an analogy I will come back to, a good film is based on a good story and well thought through storyboard and script – don't start shooting until the initial thinking is done. Working internally with a strong design team, you can sometimes see the frustration that can come with so much technology available, but a difficulty in finding the right tools. Again, it used to be so much easier with the simple slide projector as the main weapon of choice for images and its known limitations.

There is a vast array of possibilities today, but designing for the public space and its heavy use requires careful choices and often a thick wallet. We probably have too much technology to hand, but thinking of the many areas of change, it's interesting to just touch on what we're watching and waiting for, or need further developments in, to help us just that little bit more.

> "Now we face a situation where without some form of 3D, 4D, 5D or interactive experience, clients and visitors alike feel short-changed"

PROJECTORS

Video projectors started to be used in museums around the early 1990s and are now a key tool for images. The variety of models and lenses out there are huge and often confusing, but as the technology advances, the possibilities for projecting good quality images from the right place increases. That said, we're waiting for the more powerful and brighter projectors to have lenses that allow them to be placed very close to the screen surface for front projection. Projectors with these special off-set lenses exist for the classroom, but they tend to be lower quality, lower priced and suitable for intermittent use. Projector manufacturers are working on models to meet the demands of museum designers wanting to explore close viewing of high resolution images, without visitors casting shadows and without resorting to rear projection or videowalls.

Another major step we're waiting for with video projectors is the development of higher power LED lamp sources, replacing filament and discharge lamps. These will offer long lamp life and more economical running costs without having to get to the projectors every few weeks for lamp changes. It will also allow us to make the technology a little more discreet with projectors tucked away from view, as access would not be required quite as much.

A UK-based company, Digital Projection, is at the forefront with this technology, tackling some real issues with heat from these very compact LED sources, but it looks like a few years yet before the traditional lamps belong in a museum too.

Digital Projection is a UK manufacturer pushing the limits of LED in video projectors

AUDIO

Audio is a very poor partner in technology design for museums, and is often thought about at the last minute. However, many of the tools available have been around for some time with a wide range of loudspeakers and processing equipment that tends to evolve slowly from our point of view.

The trend to watch is in the development of directional loudspeakers, allowing small groups or single visitors to be targeted with sound while keeping the general ambient levels down. Dealing with localised sound where there are a number of exhibits together has always been an issue, and while the ugly-looking sound dome has been around for a while and is reasonably effective but low quality, moves are being

"There are some very impressive LED displays which are extremely detailed and high quality, but come with a price tag"

made with directional flat panel loudspeakers, which designers would much prefer.

The next step is to ensure they deliver higher quality audio, with a tightly defined beam. Some manufacturers are concentrating on this for use in museums.

LIGHTING AND LED

It seems that everywhere you look these days, the light emitting diode, LED, is making a huge impact, especially in lighting. With LED-based lighting we have, in theory, improved operational costs and efficiency. But, along with that, the LED has bought in a dash of colour that wasn't so easily achievable with old tungsten and halide lighting units. In some cases, excessive design is possible with too much use of colour, but let's look at the use of LED in displays. High resolution LED and OLED video panels are still relatively expensive, but can give some excellent results for viewing images in high ambient lighting conditions – as long as you're not too close! That said, there are some very impressive LED displays out there in corporate environments, which are extremely detailed and high quality, and can be viewed close up, but come with a price tag.

One spin off from LED development is the low resolution LED panel, where pixels are widely spaced and placed behind a diffuser panel. First seen in the BMW museum in Munich, as a backdrop to the whole exhibition space, development continues on lower cost panels and creative solutions. While this technology isn't suitable for highly complex visual images, it will be used extensively to create atmosphere and effects and to cover extensive surfaces with programmable backgrounds.

(Above) The BMW Museum in Munich features an LED panel as a backdrop to the exhibition space

(Below) A new LED low resolution panel from Light Emissions, which is just being introduced to the market

©LIGHT EMISSIONS

MOBILE DEVICES

The other area where technology is moving at a fast pace and starting to impact museums in a large way, is the mobile phone or smartphone, media players and tablets.

We watch with great interest and are actively using devices from mobiles to handheld media players in projects and have some success. They offer the ability to tell stories in different languages, explore subjects at different levels, superimpose the past on the present with augmented reality and even more. What we need though is great care in applying mobile applications, as they can detract from the main shows and objects and work against us, as much as add value.

So, back to the movie analogy yet again – when you watch a good film and get involved emotionally and react to the story as it develops, you don't think about the amazing technological changes taking place in the digital cinema business – you just enjoy the film. If the theatre is poor, badly designed and has a poor focused image or bad sound, you notice.

Applying the same principles in museum exhibition design allows visitors to focus on the story, but a few technology advances will just make the design sweeter. ●

Kevin Murphy is development director at Event Communications, designers of museums, science centres and attractions

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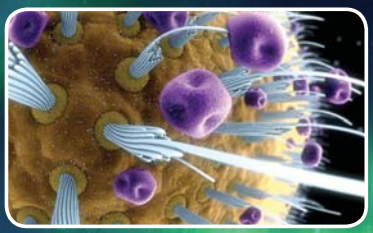

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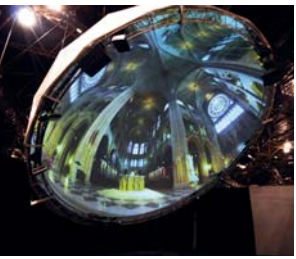

7thSense provides solution for immersive movie

7thSense has provided content solution for an immersive movie played within a domed AV theatre. Part of Canon's expo event, the dome features three 7thSense Delta media servers, each with quad outputs, natively serving a 3,200 x 3,200 pixel fisheye movie as an uncompressed TGA sequence on all servers, so that no further processing is required on-site. Ten Canon XEED SX7 projectors are configured to create an immersive experience for the audience with a combined image that measures 9m (29.5ft) across.

Communications agency Imagination created a six-minute custom show, recorded with Canon products to film locations in New York, Tokyo and Paris. This was integrated with CGI elements, such as a virtual fly-through of the Guggenheim museum in New York, US. Director Ian Macpherson says: "It was our job to realise the immersive environment. The content was created when the position and angle of the dome were set and we then designed the technical installation and provided playback and mapping tech and support. We worked with dome specialists and provider Holovis International to create a setting. Physical installation and alignment of the system using Delta was completed in just four days."

fun-kit.net KEYWORD **7thSense**

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Interactive exhibit enhanced by Calibre

PHOTO: THE SCIENCE MUSEUM

London's Science Museum's 'Who Am I?' interactive visitor experience uses Calibre UK's PremierViewProHD Image Warp Processors to warp and blend incoming video signals, while retaining absolute signal quality. Calibre image processing lies at the heart of the Threshold zone, which forms a dramatic entrance to the gallery. Moving coloured particles are projected onto the floor of a long catwalk. Visitors are 'drawn' along the floor by the colours and, as they approach the wall at the end, a concealed camera captures the infra-red reflections given off by each person. These are translated into a personal, particle-based image that runs down the wall and onto the floor, mimicking each body's movement in real time.

Five Panasonic 6000 series projectors are positioned out-of-sight and driven at angles to fulfil the project brief of seamless imaging moving along. This created a challenge for systems integrator Sarner, according to the company's Head of Engineering, Chris Hawes. "At the time we tendered for the project, there was no solution on the market capable of achieving a seamless vertical and horizontal video wall with 180-degree interaction," he explains. "Fortunately, by connecting PremierViewProHD Image Warp Processors from Calibre to each of the projectors, we were able to warp the projected images and blend them back into shape to create a single, continuous image. Visitors are able to walk within 1.9m (6ft) of the wall without affecting the projection at all."

fun-kit.net KEYWORD **calibre**

Dataton software used in Commonwealth Games

One of the focal points of the opening and closing ceremonies of the 2010 Commonwealth Games in India was a giant helium balloon, believed to be the largest of its kind ever constructed. Rising from the centre of the 60,000-seater stadium, it formed a 360-degree projection surface. Onto this, event integrator Creative Technology shone images depicting numerous aspects of Indian history and culture using 16 pairs of Barco FLM R22+ projectors, synchronised, seamlessly edge-blended and image-warped using Dataton's flexible media server Watchout.

A full backup for every video channel used in the 'balloon' movie was necessary as the games were held during monsoon season and it was uncertain how much protection the projectors would need. Watchout was chosen because it could adapt to any type of media supplied from a variety of sources.

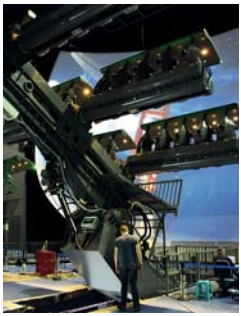
fun-kit.net KEYWORD dataton

Granite Precision updates Hollywood Citywalk

Granite Precision Inc is currently updating Universal Studios Hollywood Citywalk's music-video bigscreen and background music system. The company installed Integrated Media Server (IMS) at Citywalk in 2007, which has allowed them to synchronise the audio, video, data display and lighting from a single product.

"The IMS takes advantage of a PC-based Windows system – a relatively inexpensive, off-the-shelf hardware with which most users are familiar," says president Jeff Long. "The IMS uses specialised software that works underneath Windows. This approach is innovative as our code can keep running even if Windows crashes."

fun-kit.net KEYWORD granite



Electrosonic's AV solutions for dark rides in China

Electrosonic has provided all the AV solutions for two new dark ride attractions at Happy Valley outside Shanghai and Window of the World in Shenzhen, north of Hong Kong. Electrosonic supplied full projection systems and screens, the main show control system, 4D effects, audio and lighting. The company worked with Huss Attractions, the ride system providers, and creative content producers Super 78 Studios. Both attractions are movie-based dark rides featuring curved screens and a quad projection system with custom lenses, dynamic audio reinforcement and 4D effects. In Shanghai, Flight of the Dragon depicts an aerial journey over China showing vast landscapes, metropolitan areas, terraced farming and mountain ranges. In Shenzhen, Flying America depicts the scenic US from its cities and landmarks to its national parks and diverse terrain.

"All systems are accessible backstage so servicing can be performed during the shows," says Electrosonic project manager Thursby Pierce. "We left room in the racks for more equipment should the client want to expand later, and there is a lot of space on the server to handle more content."

fun-kit.net KEYWORD electrosonic

POLITICS ON THE MENU

As VIP guests go, the president and first lady rank quite highly. General Manager of The Newseum's restaurant The Source, Rikka Johnson, tells Kathleen Whyman about the challenges of hosting for such prominent guests

Executive chef Scott Drewno, who cooked for the Obamas

WHAT HAPPENED?

It was January 17th. It was an exciting time for us anyway because celebrity chef Wolfgang Puck (who owns the restaurant) was going to be there later in the week.

The Secret Service came to visit me in the morning. We're really lucky because in Washington we get high profile celebrities and politicians several times a week. At first I thought it would be a usual discussion about service details, until they asked me to go into a private space. Then they told me that our visitors would be the president and first lady.

The length of time the Secret Service gives us to prepare for important guests varies. Sometimes it's a week, sometimes days – this time it was hours. The Secret Service told me that I couldn't tell anyone else in the restaurant. I was able to talk to the executive chef, Scott Drewno, but until the president and first lady walked in the door, no one else knew they were coming.

(Above) The Obamas enjoyed a variety of courses including dim sum

WHAT SPECIFICATIONS DID THEY HAVE?

One of the things that I talked to his staff about was what sort of experience they wanted. What intrigued me was that they wanted a completely normal experience. They didn't want a private dining space and they didn't want to be isolated. I had guests seated directly next to them.

WHAT HAPPENED WHEN THEY ARRIVED?

When the Obamas arrived, there was a huge motorcade. The hostess was absolutely shocked. The president was extremely friendly with the staff and very welcoming and he greeted the restaurant on arrival. Once in the main dining room, they sat down like a normal couple.

HOW DID OTHER GUESTS REACT?

When I moved here I was told that Washington is a city of adults. This occasion reminded me of that statement. The Obamas were there to celebrate Michelle's 47th birthday and it was a very relaxed dinner. Guests were seated right by their table, but there was no gawking or awkwardness.

WHAT SECURITY WAS THERE?

Guests didn't know about the president before they sat down, but people arriving afterwards had to be wanded [scanned with a metal detector and bag checked]

(Above and right) The Source is celebrity chef Wolfgang Puck's restaurant at the Newseum in Washington, US

(Below) It was President Barak Obama's first visit to the restaurant, but the first lady had been before

"Social media is something you have to be aware of. Guests were putting it on twitter, so people found out straight away. Our PR person found out through twitter rather than from me"

before coming in. Security guards were standing around the room, but because there are so many people with security detail in Washington, you get used to it.

HOW DID THE PRESIDENT AND FIRST LADY BEHAVE?

He was very jovial and there was lots of conversation between them and laughter. It was a proper date. It was really neat.

The chef sent out a few dishes, then they chose their main courses. The president ate a lot, so he must have enjoyed the food. They were at the restaurant for about two-and-a-half hours.

WHAT PREPARATIONS DID YOU MAKE?

I didn't have to make any. The security detail was thorough and easy to work with. They came to me very prepared. They had detailed floor plans of the space. I don't know where they got this from or how long in advance they'd prepared for the Obamas to dine with us that night.

Their staff chose the table they were to sit at, but no changes were made and we didn't add any special touches. They had exactly the same experience as everyone else. I didn't even change the waiter or back server allocated to their table.

WHAT WOULD YOU HAVE DONE IF THE RESTAURANT HAD BEEN BOOKED?

Thank goodness it was a Monday night and not Valentine's Day!

They only took up one table and didn't ask for tables around them to be kept clear. I was surprised by that. Even if we'd been busy, we could have fitted in one table.

WHAT WERE THE CHALLENGES?

Social media is something you have to be aware of. Guests were putting it on twitter, so people found out straight away. Our PR person found out about it through twitter rather than from me. It's crazy to me that things like that can happen so quickly. By the very next morning, people were phoning and asking to book the president's table and have the same menu.

On a practical note, I noticed it was getting icy during the evening and that there was a press van parked outside. So one priority was finding salt for the sidewalk, so they didn't slip over in front of the press.

WHAT OTHER VIP GUESTS HAVE YOU HAD?

Michelle Obama had already been to the restaurant a few times and had told us on previous visits that she enjoyed our food.

We regularly have high profile guests, from national security advisers, to the speaker of the house, to the former vice president. There are a lot of business deals going on or private conversations, so people often ask for quieter areas. We deal with that almost on a nightly basis.

WHAT ADVICE CAN YOU OFFER OTHER HOSTS OF VIP GUESTS?

Find out what they want and offer that while also playing up your strengths.

For example, the Obamas wanted a normal experience, so we provided that while highlighting our food and quality service.

Another piece of advice is don't get stressed out – the venue will run as it usually does, so relax and enjoy it. It's exciting for the staff and the guests and it's great publicity for the venue.

WHAT WAS YOUR EXPERIENCE?

We have a great many celebrities and high profile guests so it was like that, just multiplied a few times.

I was the person who greeted them, took Michelle's coat and brought them up to the table. A lot of people wanted to know what she was wearing. It's a great story. I called my parents to tell them! ●

THRILL SEEKER

Visitors wanting an adrenalin-fuelled experience in Orlando rather than a family day out, may soon get what they're looking for at Orlando Thrill Park. Co-founders, Doug Rutledge and Joyce Arbucias, tell Kathleen Whyman about their white-knuckle offer

WHAT IS ORLANDO THRILL PARK?

DR: Orlando Thrill Park (OTP) will be a thrill-ride based amusement park featuring 12 thrill rides including roller coasters and free fall drops. This isn't a park to bring an infant to, it's for thrills. The outdoor attraction will also feature restaurants, gift shops and guest services.

Pending approval of the development plans by the Orlando City Council, construction will begin at the end of 2011 with a targeted opening date in mid 2013.

WHOSE IDEA WAS THE PARK?

DR: I came up with the idea of an incredible, thrill-based experience using some of the latest and greatest ride technology and platforms. I told Joyce and we started evolving the idea and built a team. We identified the roles we needed to move the company forward – creative, masterplanning, cost management, operations and so on. We then chose the people who would best suit these roles.

It's an effort of love by everyone involved. We've all developed it – I just came up with the concept.

HOW DID YOU TWO GET TOGETHER?

JA: We've worked together on several projects. Doug's on the business strategy and planning side and I'm on the creative, so we often get thrown together on teams.

WHY DOES ORLANDO NEED ANOTHER PARK?

JA: What's unique about this park is that it's all thrills. The theming in Orlando is the best. We'd never try to outdo Disney, Universal or SeaWorld. We recognise them as being the market leaders, but we think there's a missing niche for the thrill seeker who wants to get onto the fastest, most exciting rides possible and ride as many of them as they can in one day.

WHAT AGE WILL OTP BE FOR?

DR: It's more about height than age. We're working with some great coaster and ride partners. By talking to them, and based on our own research and observations, we've decided that as long as kids reach a certain height restriction (42", 1m), if they like thrills, they're on board.

HOW HAS YOUR IDEA BEEN RECEIVED?

DR: We've had a lot of positive feedback with our potential funding partners. They all think the idea is a timely one.

We're blessed because Orlando is a theme park hub, not just by the number of parks it has, but the number of industry professionals that are located here. We've been able to reach out to many vendors, suppliers and consultants and they've all received the idea very well. The ride manufacturers and developers have also been very positive.

WHAT WILL THE DESIGN BE?

JA: We're evolving the design right now. We won't have traditional theming with rock work and waterfalls. We'll have our own brand identity instead. It's about the thrills and the ride experiences.

DR: We're not going to commit the capital that goes into telling those immersive story lines through elaborate theming. We're instead spending our budget on state of the art attractions and rides presented in a clean, safe, engaging environment.

We have a technology overlay that we can't disclose yet, but it allows a deeper interaction for our park guests on so many different levels. It's centred around RFID technology. We're working with a group that's developing the systems.

We're also looking at alternative energy technology. We truly want to make a commitment to the environment as well as our guests.

Doug Rutledge and Joyce Arbucias

HOW WILL YOU MEET THE NEW BENCHMARK SET BY UNIVERSAL'S THE WIZARDING WORLD OF HARRY POTTER?

JA: We're not putting together the same type of ride experience – immersive, heavily themed, indoor – but our rides will, like theirs, be state-of-the-art.

What's interesting to us is how busy the rides at Wizarding World were. When people got off, they were excited and talking about the scares and thrills and their experience. I was surprised by how broad the audience was. It shows us, and the industry, that a wide age range of people are looking for an exciting ride experience.

DR: Another differentiation between us and Universal is that not only did they create a brand new, state-of-the-art ride, they also created the whole area as a destination. Some people probably don't go there specifically for the ride, they go to walk in an incredible, immersive environment. Also, Universal's budget for Wizarding World exceeds our entire park budget!

WHEN DO YOU HOPE TO RECEIVE APPROVAL?

DR: The schedule to receive approval for the development plans is in August. I'm not nervous. We've been responsive to everything that's been asked of us. Our

About Orlando Thrill Park

Location International Drive, southwest Orlando, neighbouring the Festival Bay Mall.
Size 78-acres
Visitors Two million per annum
Costs US$260m (£161m, €187m)
Developers Orlando Thrill Park is a joint development by I-Drive Investors LLC, Miami and the OTP Group LLC
Web www.otpinfo.com

 ©cybertrek 2011

The 78-acre thrill park will be in the northern Tourist Commercial sector of the International Drive tourism area

land partner is incredibly committed to the idea and the concept and the business. He's been working diligently on providing the information that the local government needed. So we feel really good about it.

HOW WILL YOU KEEP QUEUE LINES DOWN?

JA: Part of keeping queue lines down is being developed with the technology overlay that we can't discuss yet. My company does a lot of creative, live entertainment so we've got some pretty nifty things up our sleeve. We'll keep people entertained and engaged while queuing, but this won't be an entertainment-based park.

WHICH SUPPLIERS WILL YOU BE USING?

DR: We've engaged in pretty detailed conversations with Intermin, Vekoma, Mack Rides and S&S Worldwide. Some of the rides will be very new to North America. Each of those manufacturers is very open to adding different elements to make us stand out and be even more unique.

We don't want to play the games of being the tallest or the fastest. We want to provide a compelling, thrilling experience with good value for the admission price.

Predicted economic impact

Total estimated economic impact to Central Florida is projected at $1.78bn (£1.1bn, €1.28bn) within the first 10 years of operation.

During the construction and development of Orlando Thrill Park, approximately 1,000 new construction jobs will be generated.

After opening, Orlando Thrill Park will employ approximately 950 people in permanent jobs in various operational, administrative and support capacities.

HOW WILL YOU MARKET THE PARK?

JA: As well as traditional marketing – radio, television and bill boards – we're working on something different. We think there are different, more high impact ways to reach the thrill seeking demographic.

HOW WILL YOU DEVELOP THE PARK?

We have the space to build up to 18 rides, so will expand over time. Many of the experiences that the ride manufacturers have presented to us can take place on a very small footprint, but contain a high maximum thrill. They've designed them for areas that are scarce with land, but still warrant these kind of experiences. It's great – we're seeing the evolution of ride technology and thrill-base experiences.

WHAT OTHER THEME PARKS INSPIRE YOU?

DR: I'm a theme park junkie. I'm inspired and thrilled by them all.

JA: What I love about different theme parks is seeing how each one speaks to a different person. It's interesting how they use their rides as an overall experience. We've asked ourselves, how do we take the rides themselves and make them the focus for the day; make people build the day around their favourite ride?

DR: You can tell that Joyce is more sophisticated than I am. I just want to jump on a ride and go really fast! ●

FULLDOME VERSUS FLAT SCREEN

With the current trend for fully immersive experiences, many operators are investing in domes. But do these provide a better experience than a flat screen presentation? Kathleen Whyman asks the experts

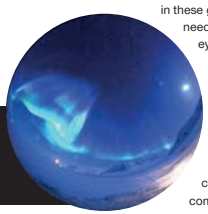
MICHAEL DAUT
director of show production/marketing, Evans & Sutherland Digital Theater

"There's something amazing about the shape of a dome that draws us into an experience more effortlessly than a flat screen. An essential way of qualifying the experience is this: we look at a flat screen; we look into a dome. It's nearly impossible to describe the impact of a dome theatre experience, because it's so immersive.

The visuals surround your field of sight as you're transported inside a cinematic event. It's kind of like surround-sound for your eyes. That said, content makes all the difference. Bad content on a dome is no better than bad content on a flat screen, and frankly, because of a dome's heightened immersion, bad content on a dome may feel worse.

One of the interesting facts about 3D is the way it's achieved. Stereo 3D combines two views of the same scene captured from slightly different vantage points, usually separated by the distance between our eyes. This 'eye separation' often changes based on what is being captured and how far into the screen or into the audience you want a 3D effect to appear. Because domes wrap imagery around you far more than a flat screen, the eye separation has to be chosen carefully to avoid eye-strain. This becomes more of a problem for flat screen 3D films converted to display on the dome, as wide eye separation will become even wider on the dome, and in some cases will be very difficult or impossible to watch.

We've developed a patent-pending stretching and warping algorithm for mapping 4:3 giant screen film content onto the surface of a dome with about 70 per cent coverage. This covers more surface area than a typical fisheye lens on a giant screen film projector with significantly less distortion, especially on the sides and top of the image. This algorithm preserves 3D in these giant screen films, but we need to format films with wide eye separation differently.



(Right) Evans & Sutherland's Experience Aurora show

Game changer

The home theatre industry has been more of a game changer than anyone could have predicted. If people can consume content in their homes, what compelling reason exists for them to go to a theatre? Commercial theatres need something unique that's not as readily available for in-home viewing.

With a 3D flat screen, there's more of a fighting chance to claim some uniqueness and rise above the din of the other home and portable media that's so readily available in just about any form imaginable. However, with the advent of 3D televisions, who knows how much this will water down the appeal of going to the theatre to see a 3D movie over the next few years.

Domes, however, will take a very long time to penetrate the home theatre market, so they create a unique experience that's worth paying to go and see.

Domes aren't a current trend – they've existed for centuries in various forms in cathedrals and other architecture all around the world. There's something about their shape that fascinates us and seems to connect with us on an essential level. I They're here to stay as a fixed projection surface in the digital cinema industry."

 ©cybertrek 2011

(Above) Global Immersion's Intensity 4D theatre showing at Our Dynamic Earth, Edinburgh, Scotland

MARTIN HOWE
chief executive,
Global Immersion

"By definition, domes are more immersive because the audience is literally placed inside the screen and therefore inside the content. If the content's produced well, then it's a more immersive experience and can be significantly more engaging and compelling than a flat screen presentation.

There are, however, more challenges in providing content for domes. Firstly, it's a complex format. Not only are there typically many more pixels to handle, which adds to cost and complexity in the production workflow, but also the frame is massive compared to flat screen. Literally half of the entire environment is presented to the audience, which gives the producers and directors much more to think about. Add in the complexities of 3D and you can understand why it's still an emerging format.

Currently, dome content is mostly space- and astronomy-based. When an operator tries to expand into other topics, the available content is adapted for the dome. In this case, the wow factor can be lost in the implementation. As a supplier, it's important to ensure the visual quality is consistent with dome expectations.

Ideally, content should be shot to suit the format. However, it's possible to work it in post-production by applying careful distortion profiles to the content to wrap it around a fairly large portion of the dome. Partial dome done well is much more preferential to fulldome done poorly.

No place like dome

Domes are the better media to use for 3D films because if the object in the image goes outside the frame, the 3D illusion is destroyed. Curving the screen partly around the audience helps significantly and domes go all the way. 3D content designed for dome environments using good visual clues (markers) can actually make for a 3D experience without glasses.

I believe 3D is here to stay for a while. It has sufficient momentum across a range of platforms and applications that it's going to stick for longer than it has before. We all know the glasses get in the way, from a guest experience and operationally.

Home systems will become glassless quite quickly, which will drive a demand for 3D glassless in large format, but this is much more complex and expensive to achieve. Domes, even when glassless, will continue to be immersive, and, with good content, will provide a 3D offer."

(Right) NSC Creative's Black Rhino from its fulldome film 4DVenture, which was created specially for Our Dynamic Earth's 4D theatre in the UK

BEN SMITH
creative director,
Red Star

"The question of whether or not to use fulldome or flat screen depends on what story you want to tell. Sometimes that story will be better told in a dome environment, but often the subject matter is better dealt with on a flat screen in 3D.

The main factor holding back any supplier keen on providing content for a dome environment is the use of a dome theatre to test the experience! Without the huge investment of building a dome so you can watch the film, it's impossible to know what the visitor's experience will be like.

Producing dome content is far more expensive than content for flat screens. It's almost impossible to film live action for a dome environment, so pretty much everything has to be done with CGI animation. It's a highly specialised business and the end result is only really useable on a dome, whereas content for flat screens has value in other kinds of media. As a result, there are far more films to license onto flat screens than domes. Domes tend to be used for narrated, documentary-style productions, while on flat screens, action and adventure stories dominate.

Domes are here to stay, but whether the content will break out of the museums/planetaria niche and expand into general entertainment films has yet to be seen. The economics of dome theatre in terms of the size of the auditorium versus the number of visitors per hour isn't great, which is where flat screens and 3D/4D really wins.

At the moment, fulldomes and flat screens within the 3D sector are largely separate, but we're going to see some convergence in the future. Domes will have 4D effects and 3D screens will be curved into funny shapes. On the content side, we're about to see a lot more brands and licensed properties enter the marketplace, which will be very compelling for venues."

RUTH HARVEY
business manager,
NSC Creative

"Fulldome is one of the last remaining audiovisual experiences that can't be re-created at home. As with flat screen, the experience you have can entirely depend on the quality of the content and the motivation for the experience, whether it's for an educational purpose or purely for entertainment. Putting flat screen and fulldome on an equal footing with the same content in a format that is appropriate for the screen, fulldome inevitably beats flat screen hands-down for the immersive nature of the experience. Fulldome has the unique quality of being able to make you feel you're moving about without the use of rumble seats or any other physical effects.

The key question when deciding to create a fulldome film is: 'Will this work in dome?' It's essential to make the most of any medium and not just convert it because you can. An audience will often recognise a film that hasn't been created for fulldome, as conversion images can be too stretched or just too overwhelming. A comparable problem is often remarked on regarding 3D cinema; when films are made using 3D cameras, everything about the process ensures that the images work in that medium. However, when film is converted to 3D in post-, the result can be disappointing and lead to some audience members being put off 3D as a medium because of a lacklustre experience.

For operators who are unsure of which option to choose, I'd advise them not to compromise on content. Fulldome is definitely the more niche market and an experience like no other, whereas flat screen is basically a simpler option. If you haven't built the building yet, go dome and maybe throw in a flat screen small theatre for good measure. As a space, a dome is an unusual environment that can add something special to an event without much effort. Even without 3D, fulldome is essentially a 3D experience. The image surrounds you – it's an inescapable view of whatever environment can be imagined.

There are a growing number of uber-domes being built with 3D projector capabilities, so 3D is certainly going to be a more integral part of dome experiences in the future. Maybe in the industry of full-dome content 3D will survive, whereas in the numerous offerings for flat screen it'll get overtaken by other presentations.

Domes have a fixed place in space centres and science museums throughout the world and, as such, will be around for years. As to whether they stay popular with mainstream Hollywood productions being shown on them, who knows?"

> "Even without 3D, fulldome is a 3D experience. The image surrounds you – it's an inescapable view of whatever environment can be imagined"

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ERIC MARRADI
creative director, Triotech

"The challenge with domes is that to have a great impact and impress customers, the sphere needs to be big – very big.

The position of viewers in the theatre is also a key point. Even though the dome offers a 360-degree experience, the viewer will only see what's in front of them.

So, if your viewers are positioned in a circle-like arrangement (for example, in a planetarium), the content you offer on your dome needs to be relevant everywhere on your screen. That's hard to achieve. It's especially difficult if you have a storyline to tell or some action in your film.

This makes us feel that it's almost impossible to adapt film content conceived for flat or curved screen to a dome projection. It's even more impossible if we're talking about an interactive ride versus an immersive ride. The advantage of a curved screen is that it allows operators to have action-driven content, instead of the contemplative content that a dome projection conducts. Viewers then feel immersed in the theatre experience and get to see action-filled content, which would have to be compromised in a dome alternative."

TERRY MONKTON
managing director, Simworx

(Above) Simworx is currently developing a new type of immersive experience that will rival a dome's offer

"Fulldome screens and the projection system required for these are very expensive. The operator needs the budget for a large building with a high roof to house it and for customised films to be made. The cost of supplying a 3D projection set up for a flat screen is much cheaper than a dome system. The flat, or slightly curved, system offers greater flexibility in that a screen can be supplied to fit a whole variety of different room sizes, even those with height restrictions. Also, access to a large library of film content is very important. Additionally, ongoing maintenance costs are less for a flat screen set-up.

Generally, flat screen attractions are produced in a 16:9 scale format, which is an industry standard for 3D and 4D theatre/cinema attractions. It's very easy to upscale a film image to account for different sizes of screens, with no additional work required from the film producer. The main point for this is that film producers will produce 3D films for the mass market. The most popular screen for museum and theme park attractions is flat. I would guess that more than 95 per cent of attractions use a flat screen.

There's no doubt that there's a market for domes and there's a place for both types of attraction. However, I'd say that price and available film content will be the main driver for clients choosing between the two formats and, because of this, flat screens will continue to be more popular.

We're currently developing a new type of immersive experience that will be available in the market place soon. This development will offer a new and exciting means of film presentation to rival that of a dome's, while retaining the flexibility that flat or slightly curved systems offer.

(Left) Triotech's interactive dark ride is played on a curved screen, which allows action-driven content to be shown

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(Above) Marvel Superheroes 4D – a dome show, produced by Threshold, playing at Madame Tussauds, London

FRANK KALFF
commercial director, Cruden

"Partial domes are better than flat screens for racing simulation applications. Anything that increases the immersiveness of the experience is a plus, so we're always looking to include as many inputs as possible, including a good audio system and features such as seat harness loaders.

Current peripheral technology available around 3D isn't advanced enough to allow 3D to be used in a commercial racing simulation application. We're undertaking an R&D project with academic and technology partners, which could overcome the drawback of 3D's requirement for a fixed focal point. For example, we're looking at how eye-tracking technology could measure exactly where the guest's eyes are focused, so this can be fed into the software and the image generation altered accordingly. The issue is whether the bandwidth of the equipment (the hardware) and data processing (the software) are high enough to ensure a timely change of focal point in the graphics.

Our Racer Pro software has integrated various features to handle flat and curved screens or domes through features such as warping and edge blending."

JOSHUA WEXLER
president, Threshold Animation Studios

"Regardless of the medium used, it's the story that should drive the experience. It's easy to say, 'Hey, I want to do a dome theatre,' or 'I'd like to put in a 4D cinema', but what are you going to put on the screen? If the operator's goal is to create an immersive experience, then they need to work with great storytellers who will help them determine the best solution.

Supplying 3D films for a fulldome is a challenge because the extreme curvature of the dome has discernible effects on how well 3D works, so it's important to get your maths right. Poorly produced dome content can have a very bad effect – in the worst instances it can make people sick and uncomfortable. If you're producing a dome-only show, it's important to think about everything, from how you frame your shots to the timing of edits and transitions.

It is possible to adapt flat screen presentations to suit a dome, and vice versa, and it's done regularly in museums. Typically, people produce large format films (70mm) and use them interchangeably with giant screens (such as Imax) and dome screens.

There are also technologies that can convert a regular 2D cinema into a 4D theatre.

Technology moves too fast to make predictions about the future, but a good immersive experience, regardless of the technology, has the ability to play for years."

DANIEL JAMELE
vice president/CTO, MediaMation Inc

"The question of whether fulldome or flat screen is better depends upon the presentation, the film shown and the goal. If budget and space allow, curved and dome screens add another dimension and pull the viewer into the action. It's usually a budget issue, as the projectors, movies and screens are a premium, so it depends on what the client wants to spend.

Although we're not a film production company (we supply 4D chairs to add to the immersive experience), we recognise that the biggest challenge is the basic warping of the image to make it geometrically correct. A really good movie that works very well on a dome and covers the entire dome, should be produced with a dome in mind and rendered properly in post-production. However, unless it's a mission based movie for a particular venue, this is typically not practical if the producers want to license the movie to as many venues as possible. In this case, the typical application is to do the best to warp the standard movie across as much of the dome as possible. Depending on the dome and the projection system, this can be very effective even though it may not cover the entire dome or be perfect geometrically.

These days, 3D is practically a requirement for domes. Add in the 4D effects, as well as the full motion seats (5D in marketing parlance) and it becomes a great attraction rather than just a nice movie." ●

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(Top) The TimePOS system will be used at Chelsea Football Club's museum when it opens this summer; (bottom) the cash payment screen

OPEN FRONTIERS' TIMEPOS

What's the product?

TimePOS is a latest-generation touch-screen EPoS application, powering front of house sales and customer management. Designed to meet the needs of attractions, it gives operators full control of their business on a single screen, in real-time, and drives productivity by reducing transactions times and gate/outlet staffing levels.

TimePOS principally processes memberships, admissions, Gift Aid and timed activity sales. It also handles retail and food and beverage sales to drive secondary spend. The system can be used to check-in all site visitors and, through its seamless integration with eCommerce and telesales, will recognise advanced purchase bookings for Fast-track check-in.

What's new about it?

TimePOS heralds the arrival of a new generation of web-enabled, real-time POS systems. Its intuitive user interface was designed ground-up for the leisure industry and allows high-speed processing of visitors and on-site sales for busy leisure attractions, across multiple sites and franchises, without the need for large, clunky server installation.

How does it work?

TimePOS interfaces with the existing Time Pursuit ticketing, booking and customer management system over the web. It accesses a centralised product, transaction and customer data store, and facilitates an inter-relationship across all sales channels (on-site, online, telephone and third party) from a single screen.

New bookings, amendments to existing bookings and captured customer data are all saved back to the cloud-based system in real-time, just as transactions made in other sales channels can be retrieved instantaneously in the tills.

Which attractions use it?

TimePOS is used at Chelsea Football Club, where it manages timed stadium tours, and will be used at the club's interactive museum when it opens this summer.

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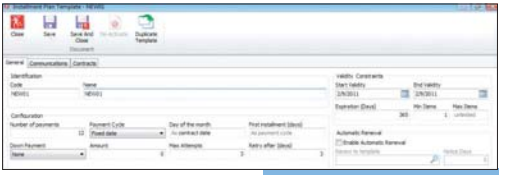


(Above) OmniTicket's Installment Billing software can be used both online by customers and at the front gate of attractions by staff

What's the product?

The OmniTicket Installment Billing software module allows venues to offer flexible payment plans for customers buying annual passes, season passes and memberships. For example, a customer could purchase an annual pass for 12 monthly payments, which are then automatically charged to their credit card. Or a season pass – ideal for the summer season at a water-park – can be purchased through three automated credit card payments over a three-month period. This functionality supports the creation of automated payment plan contracts, automated billing cycles, automated payment processing and the automated blocking of passes when scheduled payments are declined.

What's new about it?

The product offers unprecedented flexibility in the creation of payment plan offers that adhere to the specific product being purchased. An unlimited number of plans can be created to support various marketing initiatives and promotions.

For example, one client used this for a Christmas lay-away offer whereby a customer buying an annual theme park pass as a Christmas gift could make a deposit up front and then pay the balance at a later date before the end of the year.

How does it work?

The OmniTicket Installment Billing module makes it easy for attractions to offer their guests flexible payment options. With this add-on functionality, staff can generate pass holder contracts on the sale of a pass, and schedule automated billing cycles, automated payment processing and the automated blocking of passes when scheduled payments are declined.

The Installment Billing functionality integrates seamlessly with OmniTicket's on-site and online solutions to encourage easy renewals through both the front gate and on the website.

Which attractions use your new product?

Two theme park clients – one in Orlando and one in Hollywood – have implemented this technology in the last six months.

Wild Adventures theme park in Georgia implemented an early version for a Christmas lay-away option online and WaterWorld in Colorado will be launching this feature for its 2011 summer season.

MERLIN SOFTWARE'S EXPERT TICKET

What's the product?

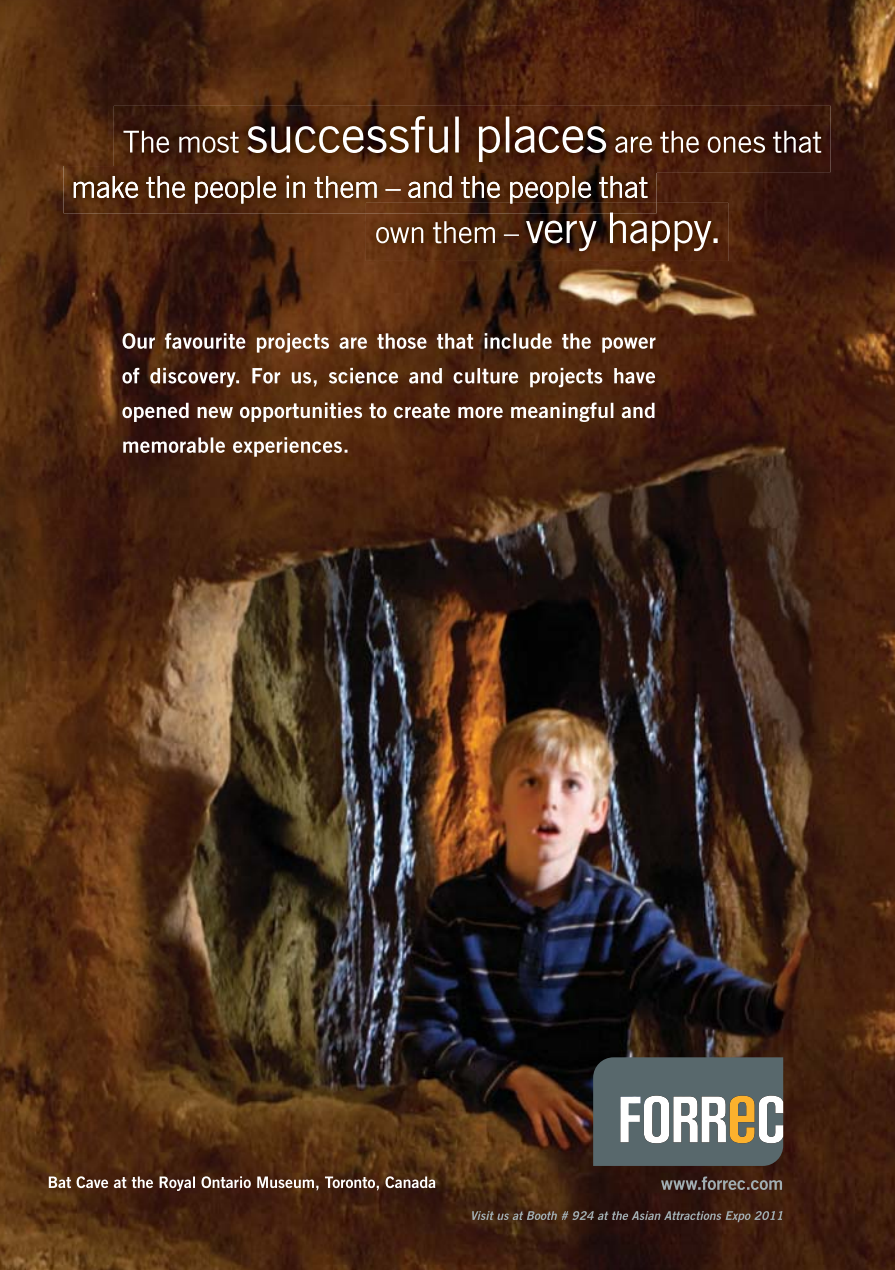
Expert Ticket is a fully integrated system, which allows operators to manage their attraction with access to any area being automatically controlled by them using the unique bar-coding system.

The reduction in staffing levels reduces costs and the unlimited number of tickets they can issue means they can create tickets for new events and exhibits in minutes. The system also allows them to manage all aspects of events and customer relationships, plus the marketing of all events directly to customers. It also incorporates retail management.

Tickets can be sold or redeemed at any till point for those out-of-season situations where only the till in the shop is operating.

Which attractions use your new product?

Clients include Ripley's Believe it or Not!, Wentworth Castle, Bressingham Steam Museum and Muncaster Castle. ●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NEW WAVE

There's no shortage of inspiration in the waterpark market, with rides becoming ever more adrenalin-charged, surfing attractions becoming increasingly popular and new markets opening up – even at sea, as Kath Hudson discovers

INTERLINK

UK/France-based water ride specialist, Interlink, has added a new concept to its portfolio of water rides: the mini flume. Pitched at three- to eight-year-olds, this baby flume ensures that even young children won't miss out on the fun at waterparks. Covering just 15m (49ft) by 7m (23ft), with a single lift height of 2m (6.5ft), the ride has six three-seater boats, and a ride capacity of 650 people per hour.

The first mini flume has been installed at Europark in Vias Plage, France

FORREC

Currently being created as the first large-scale, world-class water park in Northern China, Longmenzhen is part of a hotel, spa and commercial district being designed by Forrec.

Opening at the end of May, the park will boast one of Asia's largest mix of attractions, including more than 30 slides, water play, pools, rivers, surfing machines and the largest surfing wave pool in China. Its theme will combine traditional Chinese architecture with modern highlights. Scheduled to open later this year, the park is targeting both local and international visitors of all ages.

Spanning 12.5ha (31 acres), the park's peak day attendance will be 15,000. The waterpark will comprise a 7,500sq m (1.9 acre) wave pool, a lazy river and two spa pool complexes.

ProSlide Technology has provided pipeline tube slides, Octopus racers, Tornado, Tantrum Alley, Behemoth Bowl, Double Cannon Bowl, Plummet Speed slides, Tornado Wave and RideHouse. Whitewater West is supplying the teen water play area, a Flow Rider, bodyslides and a water play structure.

The 12.5ha waterpark is designed by Forrec and will open at the end of May

The company behind the project, the Sichuan Longmenzhen Tourism & Resorts, is aiming to duplicate the success of the Happy Magic Watercube Water Park, also in China, and was keen to incorporate the design brand which Forrec developed at Watercube into their future waterpark developments.

According to Forrec's Bettina Klug, the biggest challenge of the project was incorporating the existing structure of the former theme park with the design elements from the Watercube and producing a cohesive design.

The Burj Surj spins riders before dropping them on a slide and into the pool

PROSLIDE

Wild Wadi Waterpark in Dubai unveiled its expansion in January, with new features including the world's first ProSlide Bowling Alley, the Burj Surj and the world's longest Tantrum Alley.

Spanning a record-breaking 250m (820ft), this is the only Tantrum Alley with three funnels – two open and one enclosed. Riders in four-person tubes experience an overall drop of 20m (65ft) and plenty of speed and exhilaration, with two large sections of downhill waterslides and three tornadoes.

The Burj Surj features two 12m (40ft) bowls, which riders whizz around twice in their four- to five-person rafts before being dropped down a slide and into the pool. At more than 236m (775ft), this is longer than all existing Bowling Alleys.

NOLA 7

The Bulgarian-based NOLA 7 has designed the largest indoor waterpark on the Balkan Peninsula at Tamplier Resort, Bansko – the Bulgarian ski resort which hosted the world downhill championships. The 1,000sq m (3,280sq ft) facility opens in May with three merging pools, slides, two lazy rivers, water caves, fountains and water curtains.

According to NOLA 7's managing director, Richard Bishop, the resort is becoming increasingly popular out of season, so the waterpark will provide family entertainment to complement the adjacent spa centre.

Water curtains, fountains and caves are among the offer at the waterpark

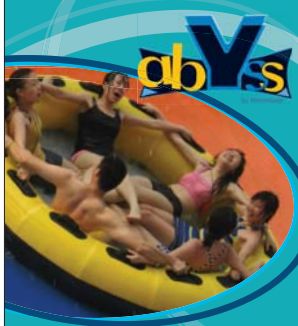
NEPTUNE BENSON

Sustainability is the watchword of Al Ain's latest waterpark. Slated to open this year, the Jebel Hafeet Project (its working title) aims to give an exhilarating and fun experience for adrenalin junkies, with a surf pool and kayaking attraction.

Neptune Benson was appointed to install five Defender regenerative media filters on the installations, which prove that green doesn't have to be costly, as the operational savings will soon offset the capital costs.

The Defender eliminates more than 90 per cent of the backwash water associated with sand filter operation. This leads to chemical savings and means less fuel is needed, as make-up water isn't being reheated. The Defender footprint takes up 25 per cent less space than conventional sand filters, as it requires no holding tank or waste discharge plumbing. Added to this, the water quality is high, saving up to 25 per cent on chemical consumption.

Al Ain's latest waterpark is using Neptune Benson's Defender sand filter system



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The Water Web rain curtains can be a play feature or used as part of a show

TECHNIFEX

Technifex has a product in the closing stages of completion, which is currently known as the Water Web.

A grid of individually controllable rain curtains, the Water Web can be programmed to create a maze for guests to move through, which can be simply reconfigured by a computer.

During the day, the Water Web can act as a play feature, but at night, or under controlled lighting conditions, it takes on a different appearance. With changing lighting and projected imagery, the Water Web can create a mesmerising show to provide a night time attraction, or a backdrop for a concert or special event. The company is currently in talks with several companies interested in integrating the Water Web into their facilities.

PHOTO: SHUTTERSTOCK.COM/BEATA WAWRZYNIUK

Disney Dream's AquaDuck is the first watercoaster to be built on board a cruise ship

WHITEWATER WEST

Whitewater West has provided one of the attractions at Disney Dream, the latest cruise ship from Disney, which is twice the size of the previous two ships.

The AquaDuck coaster, themed on Donald Duck, is based on the concept of Whitewater's award winning MasterBlaster. Combining elements of a rollercoaster, it's the first watercoaster aboard a cruise ship.

A slide loops 46m (150ft) above the water and 4m (13ft) off the side of the deck, giving great views of the ocean below, for those brave enough to look down through the translucent tube. A straight rapids section gives breathtaking views over the ocean, before guests are deposited in a pool.

"Whitewater is thrilled to have helped to create magic for the global leader in the entertainment industry," says Whitewater's CEO, Geoff Chutter. "The design and sophistication takes on-board entertainment to a new level. The AquaDuck and the Disney Dream are perfect examples of Disney's industry-leading innovation."

POLIN

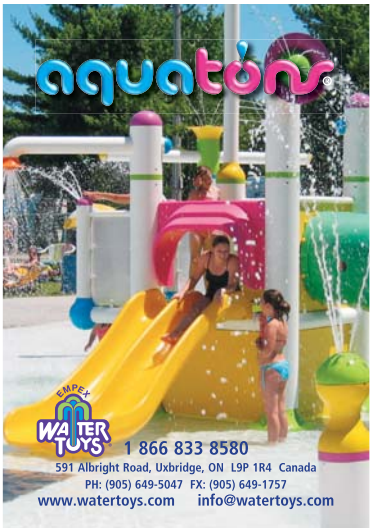
May sees the launch of an exciting new park on the Mediterranean coast near Antalya, Turkey. The Maxx Royal Resort and Waterpark covers 400,000sq m (131,2335sq ft), with the waterpark accounting for 10,000sq m (107,640sq ft).

Turkish company Polin has designed a mix of rides suitable for the whole family, including 10 waterslides and a -sized water play area with themed slides, fountains and a water play structure. This is the first site of the eagerly anticipated King Cobra, which Polin unveiled at IAAPA Asia.

King Cobra is the star attraction with Polin's marketing manager, Sohret Pakis, saying it offers an intense riding experience with great visual impact and spectator appeal. "The core feature is the unique configuration which enables two double tubes to race through a circular path, providing twists, turns, and surprises," she says. "Riders experience a steep drop, then the two tubes speed into the valley section alongside one another."

Polin uses a closed moulded production technology, Resin Transfer Moulding (RTM), which has less styrene emission than open moulded methods and creates less physical waste during production. ●

Two double tubes race alongside each other on Polin's King Cobra waterslide



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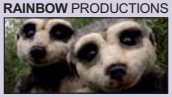

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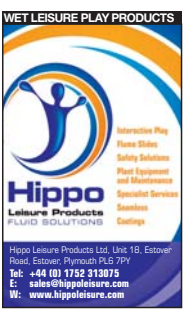

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